January 31, 2018 Project No.: 993-6548-400

Mr. Mark Conaron
Remedial Project Manager
U.S. Environmental Protection Agency, Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

RE: FFS FINAL REPORT
NORTH PENN 7 SUPERFUND SITE, OPERABLE UNIT #1 (SOIL – RESPONDENT LEAD)
MONTGOMERY COUNTY, PENNSYLVANIA

Dear Mr. Conaron:

Golder Associates Inc. (Golder), on behalf of the Respondents[1], is hereby submitting the Focused Feasibility Study (FFS) Final Report for the North Penn 7 Superfund Site, Operable Unit #1 (Soil - Respondent Lead). The FFS Final Report is submitted in hard copy (5 copies are enclosed) and electronically on the attached CD.

The United States Environmental Protection Agency's (USEPA's) approved the Final FFS Report by letter dated June 22, 2017. As directed in the USEPA's approval letter, final responses to comments were incorporated into the enclosed Final FFS Report. With this transmission of the final report copies, the Respondents' work is complete under the Administrative Order on Consent for Remedial Investigation / Feasibility Study, Docket No. III-2000-0018-DC.

Very truly yours,

GOLDER ASSOCIATES INC.

Randy White
Principal/Project Manager

Michael S. Kozar, PG
Practice Leader

RSW/MSK:mtd

cc: Colin Wade - PADEP

[1] The Respondents include Ford Motor Company, Zenith Electronics, Teleflex, and Leeds & Northrup; however, Teleflex has been coordinating directly with USEPA on its own behalf for this effort.

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FOCUSED FEASIBILITY STUDY REPORT

FINAL REPORT
FOCUSED FEASIBILITY STUDY FOR OPERABLE UNIT NO. 1

North Penn Area 7 Superfund Site
Montgomery County, PA

Submitted To: United States Environmental Protection Agency - Region III
1650 Arch Street
Mail Code: 3HS22
Philadelphia, PA 19103

Submitted By: Golder Associates Inc.
200 Century Parkway, Suite C
Mt. Laurel, NJ 08054

Submitted For: North Penn Area 7 Superfund Site Respondents

- Ford Motor Company
- Zenith Electronics
- Leeds & Northrup

Distribution:

5 Copies/2 CDs USEPA
2 Copies/1 CD PADEP

January 2018 **Project No.: 993-6548-400**

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Golder Associates

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1.0 INTRODUCTION

On behalf of the North Penn Area 7 Superfund Site (Site) Respondents[1], Golder Associates Inc. (Golder) submits this Focused Feasibility Study (FFS) Final Report, including identification and screening of remedial technologies and detailed analysis of remedial alternatives, to the United States Environmental Protection Agency (USEPA) for Operable Unit No. 1 (OU-1) at the North Penn Area 7 (NP 7) Superfund Site located in Montgomery County, Pennsylvania (Figure 1). This FFS Final Report also includes, as discussed further below, the deliverables associated with FS Technical Memorandum No. 2 (TM #2). FS TM #2 was required as a separate deliverable by the Administrative Order on Consent (AOC); however, from a logistical standpoint, resources were more efficiently applied to the FFS Final Report (which is more comprehensive), rather than just FW TM #2. This FFS Final Report incorporates USEPA comments, as summarized in their April 6, 2017 letter to the Respondents, to the extent outlined in the Respondents' May 3, 2017 response letter.

Remedial Investigation/Feasibility Study (RI/FS) activities for OU-1 have been performed by the Respondents pursuant to the AOC, Docket No. III-2000-0018-DC, which was executed by the USEPA on August 11, 2000. For purposes of the RI/FS for OU-1, the USEPA has divided the NP 7 Site into four OUs:

- OU-1 addresses the investigation and potential remediation of soils, deposits or subsurface impacts (excluding groundwater) at the Respondents' properties (i.e., Respondent-lead soil).
- OU-2 addresses soil at the Spra-Fin facility (i.e., Superfund-lead soil).
- OU-3 addresses groundwater throughout the Site.
- OU-4 addresses Site-wide vapor intrusion.

This FFS Final Report (including FS TM #2) Report fulfills all remaining FS requirements for the NP 7 Site, as outlined in the AOC for OU-1. Because this FFS Final Report addresses OU-1 only, it evaluates only the soil media, and does not address the other three operable units.

Under the AOC and in accordance with a USEPA-approved Remedial Investigation Work Plan (RIWP; Golder, 2003), the Respondents conducted RI activities for OU-1 for each of their respective properties[2] between 2001 and 2005. The RI work was documented in the *Final OU-1 Soils RI Report* (Golder, 2008a), which was submitted to USEPA on March 28, 2008 and subsequently approved by USEPA on August 28, 2008. In its approval of the RI Report, the USEPA acknowledged completion of the RI phase and the beginning of the USEPA-led Baseline Risk Assessment (BRA) for the project. In addition, Golder prepared the draft FS Work Plan (Golder, 2008a) in response to USEPA's August 28, 2008 directive and subsequent

[1] Respondents - USEPA Administrative Order on Consent (AOC; Docket No. III-2000-0018-DC): Ford Motor Company (on behalf of its subsidiary, Ford Electronics and Refrigeration LLC), Leeds & Northrup, and Zenith Electronics. Teleflex, a fourth party to the AOC, is proceeding along a separate path from the other three Respondents.
[2] 1180 Church Road, 1190 Church Road, and 351 Sumneytown Pike.

correspondence on October 28, 2008. The revised FS Work Plan (Golder, 2016d) addressed USEPA's comments, as summarized in their April 13, 2009 comment letter.

According to the Final FS Work Plan (Golder, 2016d), the primary purpose of FS TM #2 is to document the following elements of the FS process for OU-1 for each of the NP 7 properties[3] previously owned by the Respondents:

- Review of preliminary Remedial Action Objectives (RAOs), proposed approaches for completing the FS, and chemical-specific Applicable or Relevant and Appropriate Requirements (ARARs)/To Be Considered (TBCs) for each property.[4] Chemical-specific ARARs are summarized on Table 1.
- Identification of location- and action-specific ARARs (Tables 2 and 3, respectively), evaluation of Candidate Preliminary Remediation Goals (PRGs) and development of Controlling PRGs for those chemicals of concern (COCs) that present an unacceptable human health, ecological and/or soil-to-groundwater risk, based on CDM risk assessments and subsequent risk management evaluations performed on behalf of the Respondents. Candidate PRGs and the development of Controlling PRGs are summarized on Tables 4 through 6.
- Determination of whether RAOs, other than those in support of future property stewardship[5], are warranted to protect human health and the environment.
- For those properties, where RAOs are warranted, the following TM #2 components are presented:
  - Evaluation of location- and action-specific ARARs/TBCs, as necessary, for detailed analysis.
  - Remedial technology screening results.
  - Remedial alternatives for detailed analysis.
- For those properties, where RAOs are <u>not</u> warranted, the property exits the FS process and the rationale for not performing further FS evaluation is provided.

The FS elements envisioned as part of FS TM #2 are primarily addressed in Section 5 of this FFS Final Report. For those properties, where RAOs are warranted because COC concentrations do not meet Controlling PRGs or are inconsistent with background, remedial alternatives are identified and subjected to detailed and comparative alternatives analysis. This FFS Final Report also contains the identification and screening of remedial technologies (Section 6) and detailed remedial alternatives analysis (Section 7), which comprise the final two evaluations in the FS process (i.e., outside the scope of the FS Tech Memo #2, as outlined in the FS Work Plan). The overall purpose of the FFS Final Report is to present and evaluate remedial alternatives, as necessary, to address unacceptable risks and/or applicable chemical specific ARARs, if any, in relation OU-1 soil at the NP7 Site. The remaining sections present the site operational and RI/FS background (Section 2), physical characteristics of the NP7 Site (Section 3), status of the FS

[3] 1180 Church Road, 1190 Church Road, and 351 Sumneytown Pike.
[4] Preliminary RAOs, proposed FS approaches and preliminary chemical-specific ARARs were discussed at the July 17, 2015 meeting with USEPA and documented in the materials forwarded to USEPA via cover letter, dated July 20, 2015.
[5] Including institutional/engineering controls and related inspections, monitoring, maintenance, land use confirmation, and reporting.

process (Section 4), FS conclusions (Section 8) and references used to the prepare the FFS Final Report (Section 9).

2.0 SITE OPERATIONAL AND RI/FS BACKGROUND

2.1 Site Description and History/Current RI/FS Status

In 1979, the North Penn Water Authority (NPWA) identified trichloroethylene (TCE) in several supply wells, including well NPWA L-22 (Figure 1). Subsequent investigation of nearby industrial and residential wells also detected TCE, as well as, tetrachloroethylene (PCE) and 1,1,1-trichloroethane (1,1,1-TCA). Due to the presence of these chlorinated volatile organic compounds in groundwater, a large area of affected water supply was designated by the USEPA as the North Penn Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) Site. The NP 7 Site was listed on the National Priorities List (NPL) in 1989.

The North Penn Superfund Site encompasses about 227 square miles and has been subdivided into numerous areas. Figure 1 depicts the NP 7 Site and various associated properties, as well as, the location of the NPWA well L-22, and other major area features, such as, local roads and waterways.

The AOC for OU-1 (specifically Section VIII.D.1.b) documents that the basis for the AOC was the finding of chlorinated volatile organic compounds (VOCs) in NPWA Well L-22. The Respondent properties are listed below:

- 1180 Church Road.
- 351 Sumneytown Pike.
- 1190 Church Road.
- 205 Church Road[6].

Figure 1 shows the Site, the locations of the individual Respondent properties within the Site, and the location of Well L-22. Several industrial facilities were identified in North Penn Area 7 as having handled a variety of chlorinated VOCs including TCE, PCE, and 1,1,1-TCA.

As noted in Section 1, the USEPA has divided the NP 7 Site into four operable units for technical and administrative purposes. A description of the OUs along with the project lead and status for each OU is listed below:

OU	Description	Activity	Lead	Status
OU-1	Investigation and potential remediation of soil or subsurface impacts (excluding groundwater) at the Respondents' properties.	Remedial Investigation	Respondents	Approved August 2008
		Risk Assessment	USEPA	Completed February 2015
		Feasibility Study	Respondents	Completed February 2017

[6] Respondent for the 205 Church Road property (Teleflex) is proceeding along a separate path from the other three NP7 Respondents; therefore, all references to 205 Church Road (Teleflex) have been removed from subsequent sections of this FFS Final Report.

OU	Description	Activity	Lead	Status
OU-2	Investigation and remediation of soil at the Spra-Fin facility	Remedial Investigation/ Feasibility Study	USEPA	Record of Decision (ROD) signed June 2004
		Remedial Design	USEPA	Completed September 2005
		Remedial Action	USEPA	Completed 2012
OU-3	Site-wide groundwater	Remedial Investigation	USEPA	Completed July 2011
		Risk Assessment	USEPA	Completed April 2012
		Focused FS	USEPA	Implemented 2012
		FS Pilot Study	USEPA	Completed 2016
		Feasibility Study	USEPA	Pending 2017
OU-4	Site-wide Vapor Intrusion	Remedial Investigation	USEPA	Completed 2015
		Feasibility Study	USEPA	Completed 2016

The division of responsibilities between these interrelated operable units creates unique challenges with regard to the investigation and remediation of the NP 7 Site. Additional challenges include the fact that the Respondent's properties are geographically separate; have differing site operations, histories and environmental impacts; have differing site features; are in differing states of redevelopment; and are utilized for various commercial, industrial and residential purposes. The remainder of this section describes the three Respondent properties to which this FFS Final Report applies.

2.1.1 1180 Church Road

The 1180 Church Road Property consists of approximately 52.8 acres of land located along Church Road within both Upper Gwynedd Township and the southern corner of Lansdale Borough. The location of the property, as shown on Figure 1, is within the area bounded to the north by Pennbrook Station, to the west and northeast by the SEPTA Railroad right-of-way, and to the southeast of 1190 Church Road Property.

The property was historically used as a slate quarry by Lansdale Brick Company. Philco Corporation (Philco) first acquired the property in 1961. The building and support facilities were constructed in 1966 by Philco. The main building has been expanded at least once since the original construction and is currently a one-story structure with an approximate area of 400,000 square feet.

Philco manufactured television picture tubes at the facility until the property was purchased by Zenith Electronics Corporation of Pennsylvania (Zenith) in 1973. Television picture tubes continued to be manufactured for about 18 months during Zenith's ownership until operations ceased in December of 1974. Except for routine security, the facility remained closed and inactive until July 26, 1983, when the property was sold to the Montgomery County Industrial Development Authority. The 1992 USEPA RI/FS Work Plan, prepared by CH2M Hill (CH2M Hill, 1992), states that Elan Associates purchased the property in 1983 and that at the time of the report, Rouse Associates owned the property.

According to EMG Corporation, redevelopment of the property to its current use began in 1989. EMG also indicated that in January 2000, the main building on the property was being used for multi-tenant

commercial/manufacturing purposes. Activities being conducted at that time included forms printing, computer system development, photographic development, and office activities. Current activities in this building are expected to include similar commercial/manufacturing uses. In the vicinity of the former lagoons, the property was redeveloped and a hotel/conference center is now located in this area. Currently, the property has mixed uses including commercial/manufacturing and a hotel/conference center.

2.1.2 351 Sumneytown Pike

The 351 Sumneytown Pike Property is located within Upper Gwynedd Township at the intersection of Sumneytown Pike and Dickerson Road in Montgomery County, Pennsylvania (Figure 1). The main property occupies approximately 50 acres and is bounded by Sumneytown Pike to the south, Beaver Street to the east, Dickerson Road to the west and Wissahickon Avenue to the north. The former Technical Center, part of the original facility, was located on a separate parcel across Dickerson Road from the main property.

Data regarding the property ownership prior to the purchase by Leeds and Northrup is not available. However, the property was owned by Leeds and Northrup from 1953 to 1997, when it was sold to North Wales Associates, L.P., which later sold the property to Merck Corporation (Merck). Merck is the current landowner and operates a large corporate complex on the property.

Prior to development, the property was primarily used for agricultural purposes. In 1956, Leeds and Northrup developed the property for the manufacture of process control instruments and systems assembly. The main manufacturing facility (located on the main property) consisted of a 643,000 square foot building and several outbuildings. The outbuildings consisted of a boiler house, an electrical substation, a metal salvage building, a hazardous waste storage building, a flammable liquid storage building, and two other structures from the original agricultural use. An additional 120,000 square foot building (the former Technical Center) was also constructed in the mid-1950s on a separate parcel of land across Dickerson Road from the manufacturing facility. The former Technical Center housed an engineering, research and design center.

Chlorinated solvents, including TCE and 1,1,1-TCA, were used at the manufacturing facility as degreasing agents; TCE was the predominant solvent used for degreasing on site (CDM, 1988b). Until 1983, virgin solvent was stored in a 500-gallon AST on a concrete pad adjacent to a degreaser unit located on the north side of the main building.

Waste chlorinated solvents were stored in 55-gallon drums that were located at the Salvage Lot (the paved and grass-covered area east of the Salvage Building), as well as, the hazardous waste storage pavilion. In 1979, 2 to 3 feet of surficial soil, suspected to be contaminated with waste oil, grease, and solvents, was excavated from an area near the salvage lot. The impacted soil was remediated by the owner on-site and

reportedly placed back into the excavation. However, little information is available regarding the specific nature of the remediation.

The storage pavilion had a maximum capacity of 70 drums and was located on the northeastern corner of the main building. It is documented that, among other chemicals, spent halogenated solvents, carbon tetrachloride, and 1,1,1-TCA were stored in the pavilion prior to off-site disposal. The storage pavilion was a regulated temporary RCRA storage facility.

Three sludge dewatering beds and a former settling tank associated with process wastewater treatment were located along the north side of the former main building as well as a sedimentation basin located to the north-west of the former main building. The Pennsylvania Department of Environmental Resources (PADER; now PADEP) approved the final closure of these units in 1985 (PADER, 1985). Based on the information reviewed, it is reasonable to conclude that the waste streams associated with the sludge dewatering beds and settling tank were inorganic in nature.

The former Leeds and Northrup main manufacturing building (on the main property) and associated structures were demolished and Merck constructed a large corporate facility in their place. The former Technical Center, which was located on a separate parcel from the main manufacturing property, has also been demolished and a daycare facility has been built on this parcel. The properties currently contain a large corporate facility with support services.

2.1.3 1190 Church Road

The 1190 Church Road Property is located within both Upper Gwynedd Township and the southern corner of Lansdale Borough at the intersection of Church Road and Wissahickon Avenue in Montgomery County, Pennsylvania (Figure 1). The property encompasses approximately 36 acres, the majority of which were previously covered by buildings or asphalt/concrete surfaces.

The 1190 Church Road Property was undeveloped until 1942, when the National Union Radio Corporation utilized the property as a manufacturing plant to support wartime efforts. National Union Radio Corporation constructed the original buildings of the facility, which included portions of Building 40. Other buildings were added thereafter, ending in 1973.

After National Union Radio Corporation, the property was occupied by the Lansdale Tube Company (which was owned by Philco) from 1947 to approximately 1961. Ford Motor Company (Ford) acquired Philco in 1961, and transferred those assets to Philco/Delaware, a wholly-owned subsidiary of Ford. In 1966, Philco/Delaware's name was changed to Philco-Ford Corporation, which became Aeronutronic Ford Corporation in 1975, and subsequently became Ford Aerospace and Communications Corporation (FACC) in 1976. In 1982, the Ford Electronics and Refrigeration Corporation (FERCO) was incorporated in

Delaware, and assets, which included the Church Road facility, were transferred from FACC to FERCO. In 2000, the property was sold to Preferred Real Estate Investment LLP, which in turn sold the property to Dewey Commercial Incorporated (DCI) in 2004. DCI subsequently sold portions of the property to several other entities, which are summarized in the table below.

Parcel ID Number	Current Property Owner	Address	Purchase Date
11-00-02048-01-1	LANSDALE PARKING AUTHORITY	1 Vine St, Lansdale, PA 19446	October 3, 2005
56-00-01327-01-2	SPUS7 STATION SQUARE LLC	Po Box 638, Addison, TX 75001	December 17, 2015
11-00-02048-00-2	DCI STATION SQUARE LP	435 Devon Park Dr Ste 200, Wayne, PA 19087	February 26, 2004
56-00-01327-00-3	DCI STATION SQUARE LP	435 Devon Park Dr Ste 200, Wayne, PA 19087	February 26, 2004
11-00-02048-02-9	PATRIARCH IV LP	311 N Sumneytown Pike Ste 1-A, North Wales, PA 19454	October 24, 2005
11-00-02048-03-8	PATRIARCH IV LP	311 N Sumneytown Pike Ste 1-A, North Wales, PA 19454	October 24, 2005
11-00-02048-04-7	PATRIARCH IV LP	311 N Sumneytown Pike Ste 1-A, North Wales, PA 19454	October 24, 2005
11-00-02048-05-6	PATRIARCH IV LP	311 N Sumneytown Pike Ste 1-A, North Wales, PA 19454	October 24, 2005

Notes:
1) Based on communications with CBRE, Parcel No. 56-00-01327-01-2 is owned by SPUS7 Station Square, LLC, a special purposes entity of CBRE.

A number of electronic items were previously manufactured at the facility, as follows (Schussler, 1998 in ARCADIS, 1999):

- AM radios for automobiles from approximately 1961 to 1965.
- Black and white television picture tubes from approximately 1961 to 1963.
- Color television picture tubes from approximately 1963 to 1964.
- Automotive control devices and AM-FM radios for automobiles from approximately 1965 to 1975.
- Television sets from approximately 1973 to 1975.
- Engine control devices from approximately 1975 to 1991.
- Automotive clocks during the 1980s.

In 1993, all facility structures were demolished except for Building 40-X**,** the water tank, the fire pump house and the guard shack. In 1993, an electronics degreasing operation was installed in Building 40-X that operated from approximately 1993 through 1997. The operation consisted of six degreasers that utilized TCE as the degreasing solvent for cleaning electronic parts (FERCO, 1993, in ARCADIS, 1999). The plan approval for the installation of the degreasing units was issued by PADEP on March 18, 1993. Currently, the property is developed for mixed commercial/residential use.

2.2 Previous Environmental Investigations/Response Actions (Prior to RI/FS)

2.2.1 1180 Church Road

Since 1982, several environmental investigations, and the extensive remediation of two former lined lagoon areas have been completed at the 1180 Church Road Property. More than 65 soil samples were collected from over 30 borings across the property. In addition, more than 200 aqueous and sludge samples were collected during the pre-closure investigation of the two lined lagoon areas, as well as, during the completion of lagoon closure activities. Soil samples have been collected and analyzed for a wide range of parameters (including chlorinated VOCs) using standard sample collection and analysis methods.

In August 1986, American Resource Consultants, Inc. (ARC) submitted a Lagoon Closure Plan to PADER to obtain approval regarding the methods and procedures for the clean closure of ten wastewater lagoons located on the 1180 Church Road property. ARC's Lagoon Closure Plan was approved by PADER(now PADEP) by letter dated December 29, 1986 (PADER, 1986). Upon PADER approval, the Lagoon Closure Program started in spring 1987. All liquid waste was discharged to the sanitary sewer in accordance with a specific agreement with the Upper Gwynedd Township Authority (UGTA); over the spring/summer of 1988, a total of 4,200 cubic yards of sludge and soil were transported to and disposed of at a permitted off-site disposal facility (ARC, 1988).

Based on post-excavation sampling and analysis, PADER approved backfilling and final closure of each of the lagoons; further, pre- and post-closure groundwater results support a conclusion that no long-term impact to groundwater resulted from lagoon operations/closure and no further groundwater monitoring was necessary (ARC, 1988). *ARC's Lagoon Closure Report*, dated November 1988, reports upon these activities and includes all PADER approvals and disposal documentation associated with the lagoon closure work. In a letter dated January 26, 1989, PADER provided its concurrence with the conclusions of *ARC's Lagoon Closure Report*, with the recommendation that all existing monitoring wells and borings be abandoned in accordance with approved industry procedures (PADER, 1989). The vicinity of the former lagoons was redeveloped and a hotel/conference center is currently located in this area (Golder, 2008b).

2.2.2 351 Sumneytown Pike

Between 1983 and 2008, various investigations and remedial actions were undertaken at the 351 Sumneytown Pike Property. During these investigations approximately 85 soil borings were installed, and soil samples collected. Based on the results of these investigations, 180 cubic yards of soil were remediated and underground tanks were removed or closed in place. In 1997, Merck completed an environmental investigation of the property as part of their due diligence when purchasing the property; the results of this investigation were incorporated in the RI Report and subsequent evaluations.

2.2.3 1190 Church Road

Since 1987, numerous environmental investigations and remedial actions have been conducted at the 1190 Church Road Property by several different consultants. More than 300 soil samples were collected from over 200 soil borings and test pits installed across the property prior to the 2008 RI. Over 40,000 tons of soil have been removed and disposed of off-site (including the 2004 Removal Action; Golder, 2006). Magnetometer and soil gas studies have also been conducted. Soil samples have been analyzed for a wide range of parameters (including chlorinated VOCs) using standard industry sample collection and analyses methods. These investigations and studies completed the delineation of impacted areas at the property, as discussed in detail in the 2001 Phase 1 Soil RIWP (Golder, 2001).

In addition to the RI work, in 2004, soil Removal Actions were performed in two areas on the 1190 Church Road Property (based on the initial RI soil analytical data) impacted by chlorinated VOCs (Golder, 2006):

- Former Building 40-X Interior Area.
- Former Flammable Liquids Storage Area (FLSA).

The OU-1 Removal Action (i.e., soil excavation and disposal) was performed by Ford at the 1190 Church Road property, as described in the *Removal Action Plan, Former Burn Pit Area* (Golder, 2006). The OU-1 Removal Actions removed potential Principal Threat Waste (PTW) from the 1190 Church Road property; as a result, no potential PTW is situated on any of the three NP 7 properties that are the subject of this report (1180 Church Road, 351 Sumneytown Pike, and 1190 Church Road). Further, the post-excavation analytical data associated with the previous Removal Actions were incorporated into the *RI Report* (Golder, 2008b), and the comprehensive analytical database used to perform the various risk assessments and other post-RI risk management evaluations.

Based on the results of these investigations, approximately 30,000 tons of impacted soil were removed and disposed of off-site. Five buildings were decommissioned, including the removal and off-site processing of concrete slabs, footings and concrete structures such as the former wastewater treatment plant. Process piping was removed from various portions of the property. Approximately 28,000 tons of concrete were processed and approximately 6,000 linear feet of underground piping were removed. In addition, eight underground petroleum storage tanks and two above-ground chemical storage (acids and bases) tanks were removed and closed. These tank closures were approved by the PADEP. Over 150 additional post-excavation soil samples were collected and analyzed during the RI to document post-remediation conditions (Golder, 2008b).

ARCADIS Geraghty & Miller (AGM) performed a comprehensive review of all environmental investigations performed and remedial actions completed at the property and presented this information in a Final Report entitled "*Final Investigation and Remediation Report for the Ford Electronics and Refrigeration Limited*

Liability Company Site, Lansdale, Pennsylvania" dated September 10, 1999 (AGM, 1999a) and an "*Addendum to the Final Report*" dated September 30, 1999 (AGM, 1999b). Pertinent data tables describing the results of existing investigations are provided in the *AGM Final Report* (AGM, 1999a). Based on the information submitted in the Final Report and in accordance with the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2), PADEP approved the Final Report for the areas investigated and remediated. Furthermore, PADEP acknowledged compliance with the Act 2 Non-Residential Statewide Health Standards (SHS) for Soil for constituents identified, and noted a deed acknowledgement was required for soils where the non-residential SHS was applied. Subsequent to this approval, a deed restriction was obtained and recorded for the property that would maintain the future use of the property as non-residential.

In 2003, DCI presented future development plans that included residential dwellings on the property. DCI retained RT Environmental Services, Inc. (RTE) to develop a sampling strategy plan (RTE, 2003). The goal of RTE's sampling strategy was to conduct additional soil investigations that would demonstrate attainment of residential SHS in previously identified areas of potential concern. After discussions with the USEPA, RTE's soil sample results were incorporated into the RI Report (Golder, 2008b).

3.0 PHYSICAL CHARACTERISTICS OF THE SITE

This section describes the physical characteristics of the NP 7 Site including topography, geology/soils, hydrogeology, surface water hydrology, and ecology.

3.1 Topography

The Site is located in the Piedmont Physiographic Province within the Triassic Lowlands, characterized by the gently to moderately undulating topography. As shown on the US Geological Survey (USGS) topographic map of the area (Figure 1), ground surface elevations within the NP 7 Site vary from approximately 430 feet above mean sea level (msl) to approximately 280 feet above msl. The highest elevations occur in the northeast and southeast portions of the area. The lowest elevations occur in the northwestern portion of the Site near Towamencin Creek.

3.2 Geology/Soils

The Respondent properties are located in an area comprised of two main soil types: Readington Silt Loam and Made Land (i.e., disturbed/fill material). The Readington soil series is generally considered moderately well drained, silt loam textured with a depth to approximately 60 inches. Readington soils also exhibit moderately low permeability with a strong to medium acid soil reaction.

The Site is situated within the inter-fingered zone of contact between the Lockatong and Brunswick Formations. The Brunswick Formation consists primarily of red shale, siltstone, and fine-grained sandstone, and the Lockatong Formation, which consists primarily of gray-black shales.

The overburden at the 1180 Church Road property predominantly consists of red-brown to brown silty clays to clayey silts. Depth to bedrock at the property generally lies at about 10 feet below ground surface (bgs); however, in the vicinity of the former lagoon, where shale may have been mined, bedrock lies at about 15 to 20 feet bgs.

Overburden ranges in thickness from about 4 feet to 12 feet on the 351 Sumneytown Pike property. The overburden is predominantly composed of reddish-brown to medium brown clayey silt. Saprolite was noted in numerous borings and described as reddish-brown clay to light tan to gray silt and clay. The underlying bedrock is comprised of reddish brown sandstones and siltstones of the Passaic Formation, as well as, grayish-black shales of the Lockatong Formation.

At the 1190 Church Road property, soil overburden thickness ranges between 4 to 27 feet with an average thickness in the range of 5 to 15 feet. Overburden soils encountered are typically red-brown to brown dense silty clay to clayey silts, which contain little to no groundwater except where localized perched conditions occur. The property is directly underlain by bedrock of the Brunswick Formation, which consists primarily

of red shale, siltstone and fine-grained sandstone, and the Lockatong Formation, which predominantly consists of gray to black shales.

Based on observations made in the excavations during the 2004 Soil Removal Action (Golder, 2016), there does not appear to be a sharp contrast between the base of the "soil" and the "top of bedrock" (e.g., at the soil-bedrock interface). The zone of weathered bedrock at the soil-bedrock interface appears to be variable in consistency (competency or hardness) and thickness. In many places within the excavation, portions of the surface of the weathered bedrock were removed (or disturbed) along with fragments of the more competent rock. Therefore, it is possible that "soil" samples collected from the soil-bedrock interface are actually "bedrock" samples collected from the weathered zone of the bedrock surface. These materials should not necessarily be considered soil for the purpose of compliance with soil remediation standards. Photographs showing the weathered bedrock zone at the base of the excavations observed during the Removal Action were presented in the *Construction Completion Report* (Golder, 2006).

3.3 Hydrogeology

The potentiometric surface of groundwater in bedrock generally mimics the land surface (Senior, et al., 2005). Flow occurs in discrete horizons probably associated with fractures or bedding plane openings (Goode and Senior, 1998). Horizontal flow gradients within the upper bedrock zone, during the October 2005 event, ranged from 0.004 (RI-05S to T-10) to 0.006 (MW-1845 to RI-11S). Groundwater elevations ranged from 329.70 feet above msl at MW-1845 to 316.30 feet above msl at T-10. Groundwater elevations in March 2006 ranged from 339.62 feet above msl at MW-1844 to 320.37 feet above msl at T-10 with gradients ranging from 0.005 to approximately 0.007. Vertical gradients between the various zones vary greatly from weakly downward or upward to strongly downward or upward.

3.4 Hydrology

Approximately the southeastern two-thirds of the Site is within the Wissahickon Creek watershed; the remaining one-third of the Site drains to the northwest into the Towamencin Creek watershed. As shown on the USGS 7.5-minute topographic quadrangle map for Lansdale, PA (Figure 1), a ridge trending from the northeast corner to just north of the southeast corner of the Site acts as a localized drainage divide for the 2 miles south of the Site. Wissahickon Creek drains into the Schuylkill River approximately 15 miles south of the Site. Towamencin Creek is a tributary of the Skippack Creek which joins Perkiomen Creek approximately 3 miles upstream of Perkiomen Creek's confluence with the Schuylkill River. The USGS states that periodic losing conditions associated with Wissahickon Creek are probably due to over-pumping (groundwater withdrawal resulting in lowering of the water table).

At 1180 Church Road, the ground surface slopes downward to the southwest toward the nearest surface water feature, the Towamencin Creek, located approximately 50 feet west/southwest of the property.

The ground surface of the 351 Sumneytown Road property is relatively flat with elevations ranging from approximately 340 to 360 feet above msl. The main property is crossed by Dodsworth Run, a tributary to Wissahickon Creek, which is situated to the north of the main building. A small surface water body is present at the head of Dodsworth Run. The Technical Center is at an elevation of approximately 340 feet above msl, and is bordered by the Wissahickon Creek, which flows to the southwest.

The 1190 Church Road Property is relatively flat with ground surface elevations ranging from approximately 355 to nearly 380 feet above msl. Drainage at the Church Road facility is controlled by the topographic high of a gently sloping northeast-southwest trending ridge that passes through the center of the property. The slope on either side of the ridge ranges from 2 to 3 percent. Because paving, building construction and land contouring has made much of the site impervious to water, storm sewer systems are the dominant influences affecting surface water drainage. In the absence of human development, surface water runoff from the southeastern side of the ridge would naturally flow into Wissahickon Creek, while surface water runoff from the northwestern side of the ridge would naturally flow into a tributary of Towamencin Creek.

3.5 Ecology/Wetlands

The Site consists of residential, commercial, and industrial properties with small wooded and wetland areas interspersed between the properties, provided limited ecological habitat. The Site is bordered to the east and south by rural land, to the west by suburban housing developments, and to the north by the town of Lansdale (Figure 1).

Portions of two different streams (Wissahickon Creek and Towamencin Creek) traverse the NP 7 Site. Field observations found that, within this area, Wissahickon Creek is shallow (approximately one foot deep) and approximately 15 feet wide. The creek bottom is rocky and the banks are densely vegetated. The riparian habitat has been degraded by the disposal of trash and extensive human development surrounding the creek. At the point where Towamencin Creek is closest to the 1190 Church Road Property, it is bordered by a residential neighborhood and was dry at the time of previous site inspections; the creek bottom is rocky and the banks are densely vegetated.

Based on review of the National Wetland Inventory Map, wetlands exist on the northwest and south central portions of the 1180 Church Road property; a small portion of the property is also located within the 100-Year Flood Plain. Based on site reconnaissance performed in July and August 2015 and historical aerial photograph review, an estimated total of nine stormwater management culverts were identified that drain into the wooded wetland area; seven of the nine stormwater inputs drain stormwater runoff from large areas that are not in any way associated with the 1180 Church Road property (Golder, 2016b). Further information regarding the NP7 Site reconnaissance and historical photograph review is provided in Section 5.1.2. Previous Investigations have determined that there are no known wetlands associated with the 351 Sumneytown Pike or 1190 Church Road properties.

During Site reconnaissance in relation to OU-2, trees/samplings, weeds/small bushes/grasses, and various birds and small mammals were reportedly observed on the Site; however, none of these species were reportedly threatened or endangered.

3.6 Nature and Extent of Soil Contamination (Based on RI Results)

The results of the soil sample analyses for all parameters discussed herein, including Target Compound List (TCL) VOCs, semi volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, and Target Analyte List (TAL) metals, were compared to the current USEPA Region III Soil screening levels.

3.6.1 1180 Church Road

During the RI (Golder, 2008b), a total of 30 samples were collected from 18 soil borings at the 1180 Church Road property. A total of 20 were analyzed for TCL SVOCs, PCBs, and TAL metals and cyanide; 10 samples were analyzed for TCL VOCs.

The detection of TCL SVOCs and PCBs was generally limited to individual locations at relatively low concentrations and TAL metals were generally detected a varying concentrations across the property. No source areas were identified based on the RI results (i.e., TCL SVOCs, PCBs and TAL metals are not related to previous operations on the 1180 Church Road property).

Concentrations of chlorinated VOCs were detected above the screening levels in only two surficial samples collected from borings DB-2 and DB-12, installed in the Former Lagoon Area and Former Outdoor Drum Storage Area, respectively. The compound 1,2-dichloroethane (1,2-DCA) was detected at a concentration 2 µg/kg in boring DB-2. TCE and vinyl chloride were detected at concentrations of 17 µg/kg and 2 µg/kg, respectively in boring DB-12. TCE was detected at a concentration of 2 µg/kg in one of the nine additional borings (D-24) requested by USEPA, which was below the screening level. Based on the low concentrations, and the fact that samples collected from deeper depths within the borings did not contain any VOCs, the detections were considered to be adequately bounded, and thus no additional investigation was proposed for this property (Golder, 2008b).

3.6.2 351 Sumneytown Pike

During the RI (Golder, 2008b), a total of 28 samples were collected from eight soil borings at the 351 Sumneytown Pike property. Of the 28 samples, 24 samples were analyzed for TCL SVOCs, TCL PCBs and TAL metals and cyanide.

The detection of TCL SVOCs and PCBs was generally limited to individual locations at relatively low concentrations and TAL metals were generally detected a varying concentrations across the property. No source areas were identified based on the RI results (i.e., TCL SVOCs, PCBs and TAL metals are not related to previous operations on the 351 Sumneytown Pike property).

A total of 15 soil samples were also analyzed for TCL VOCs and four additional samples were analyzed for chlorinated VOCs only. In addition, 15 historic sample results from 14 borings were evaluated during the RI. TCE was detected above the screening levels in one sample collected from a depth of 4.5 feet in boring MSB-3 at a concentration of 31 µg/kg. This boring was located in the former Hazardous Waste Storage Pavilion and was delineated by historical borings MSB-1, MSB-4, and MSB-5 as well as RI borings BB-3 and BB-5. TCE was also detected above the screening levels in one sample collected from a depth of 9.5 feet in boring BB-01 at a concentration of 55 µg/kg. This boring was located in the Former Solvent AST/Degreaser Area, and was delineated horizontally by historical borings SB-33, SB-34, and MSB-12, and was vertically delineated with previous data. Chlorinated VOCs were either not detected or were detected at concentrations less than the screening levels in all other samples collected and analyzed during the RI (Golder, 2008b).

3.6.3 1190 Church Road

During the RI (Golder, 2008b), a total of 34 areas of concern were evaluated at the 1190 Church Road property. Various samples were analyzed for TCL VOCs, SVOCs, TCL PCBs and TAL metals and cyanide.

The detection of TCL SVOCs and PCBs was generally limited to individual locations at relatively low concentrations and TAL metals were detected a varying concentrations across the property. No source areas were identified based on the RI results (i.e., TCL SVOCs, PCBs and TAL metals are not related to previous operations on the 1190 Church Road property).

Based on the RI results, (Golder, 2008b), chlorinated VOCs were not detected in 20 of the 34 areas of potential concern; chlorinated VOCs were detected at concentrations above screening levels (i.e., USEPA Region III risk-based concentrations) within the following areas:

- P-2 Well Area
- Flammable Liquid Storage Area
- Manufacturing Area L
- Former Wastewater Treatment Facility
- Building 40-X Chemical Storage Area
- Area S
- Former Solvent Storage Area 1
- Virgin Solvent Storage Area
- Less than 90 Day Hazardous Waste Storage Pad
- Gold and Cadmium Plating Area
- Wastewater Sump Area
- Former Process Building and Solvent Storage Area 2
- Area M
- Building 40-X Interior

As indicated previously, based on the results of the soil investigations conducted through the initial portions of the RI, a soil Removal Action was implemented in 2004 for two areas on the 1190 Church Road Property impacted by chlorinated VOCs (Golder, 2006): the former Building 40-X Interior Area, and the former FLSA. Excavations were extended down into weathered bedrock in both of these areas. Confirmation sampling during the 2004 Removal Action demonstrated compliance with the 106 µg/kg TCE cleanup level[7] in all but

[7] The rationale for the TCE cleanup level is provided in the Removal Action Plan, Former Burn Pit Area, 1190 Church Road, North Penn Area 7 Superfund Site, Upper Gwynedd Township, PA", prepared by Golder Associates Inc., dated March 2004.

two discrete points where a single sample at the perimeter of each excavation area (former Building 40-X Interior and FLSA) showed detections (140 µg/kg at both locations) slightly above the Removal Action cleanup level (Golder, 2006). USEPA waived the 106 µg/kg Site-specific clean-up standard in an email dated January 18, 2005 (Appendix A); this was formerly Appendix O of the *Construction Completion Report* (Golder, 2006). Approximately 10,000 tons of soil were removed and disposed of off-site during the 2004 Removal Action from the Building 40-X Interior and FLSA areas (Golder, 2006).

Subsequent to the completion of soil investigation and removal action, the 1190 Church Road property was redeveloped for mixed commercial/residential uses. As discussed in the *Pennsylvania Act 2 Final Report* for the property, vapor barriers were included in the design of all occupied buildings (RTE, 2006).

3.7 Evaluation of Potential Fate and Transport

Because this FFS Final Report addresses OU-1, fate and transport process are discussed only for the soil media (i.e., other media such as groundwater are covered by other operable units and are not addressed herein). As indicated previously, the Respondent properties are used for mixed commercial, industrial and residential purposes. The ground surface at all three properties is covered almost entirely by buildings, asphalt- and concrete-paved areas, maintained turf/grass, landscaped areas, or wooded areas. The 1180 Church Road property also contains limited wetland areas, which accumulate surface water runoff from the surrounding urban area. Due to the various ground covers that cover the three properties, which protects underlying soil from the elements, the potential for soil erosion and/or contaminated stormwater runoff is negligible. Based on the risk refinement evaluations for 1180 Church Road (Golder, 2014a) and 351 Sumneytown Pike (Golder, 2014b) and the 1190 Church Road Soil-to-Groundwater Pathway Evaluation (Golder, 2016c), the soil-to-groundwater pathway is a negligible concern; likewise, terrestrial and aquatic ecological pathways (including exposure to creek sediment and surface water migration) are also a negligible concern (Golder, 2014a, 2014b, and 2014c). In conclusion, migration/exposure via soil erosion and the soil to groundwater pathway were determined not to be of concern.

4.0 STATUS OF FEASIBILITY STUDY PROCESS

4.1 Summary of Step-Wise FS Process

The USEPA approved Final FS Work Plan (Golder, 2016d) identified the following seven FS process steps:

- Step 1 – USEPA provides Risk Assessment (RA) Inputs (completed: June 20, 2008).
- Step 2 – USEPA Meeting No. 1 (completed: September 30, 2009).
- Step 3 – USEPA provides RAs to Respondents (completed: 2012 – 2015).
- Step 4 – USEPA Meeting No. 2 (completed: July 17, 2015).
- Step 5 – FS TM #1 (completed: July 20, 2015).
- Step 6 – FS TM #2 (completed: with submission of FFS Final Report: February 2017).
- Step 7 – Detailed Alternatives Analysis & FFS Final Report (completed with submission of FFS Final Report: June 2017).

As indicated above, Steps 1 through 3 were completed between 2008 and 2015 in support of USEPA Meeting No. 2 (Step 4) and FS TM #1 (Step 5), which were completed in July 2015 and summarized in Section 4. Steps 4 and 5 lay the ground work for the remainder of this FFS Final Report, which documents implementation of Steps 6 and 7 in the approved FS process; with the completion of Step 7, the USEPA will be able to select an appropriate remedy to write a Proposed Remedial Action Plan (PRAP) and develop a Record of Decision (ROD) for OU-1 at the NP 7 Site.

4.2 USEPA Meeting No. 2/FS Technical Memorandum No. 1

In accordance with AOC Section VIII.G.4, the Respondents met with USEPA (Step 4) on July 17, 2015 within 60 days of receiving USEPA's final Risk Assessments. The intent of the meeting was to discuss the draft OU-1 FS, including the detailed analysis of remedial alternatives evaluated to achieve appropriate cleanup levels. However, as discussed prior to the meeting with the USEPA, the Respondents thought it was premature to discuss the draft FS and detailed evaluation of alternatives because alternatives are not typically evaluated at this stage of the process.

Alternatively, USEPA Meeting No. 2 focused on outstanding comments and questions the Respondents had about the USEPA Risk Assessment, which included a discussions regarding risk management evaluations and the preliminary RAOs developed for each property, the soil-to-groundwater protection levels, and chemical-specific ARARs. This meeting was also used to discuss the preliminary FS approach developed for each property, which varied due to the differences in physical conditions, degree of chemical impacts to soil, the stages and types of redevelopment at each property, and preliminary property-specific RAOs. The extent to which the FS needs to be completed at each property is dependent upon whether RAOs are developed (and the type of RAOs developed) for each property.

The Respondents prepared a summary letter, dated July 20, 2015, which transmitted Golder's July 17, 2015 presentation and summarized discussions between the Respondents and USEPA at Meeting No. 2. These documents served to fulfill the requirements of FS TM#1 (Step 5), as described in the draft and revised FS Work Plans (Golder, 2008a; Golder, 2016d). Based on their review of these documents, USEPA approved the risk evaluations and preliminary RAOs, and the proposed FS approaches for the three NP 7 properties. Further, USEPA confirmed that the FS process had been completed through Step 5, as documented in their April 25, 2016 letter to the Respondents. The remainder of this section reviews and summarizes the pertinent information contained in the FS TM #1 documents towards completing the FS.

Based on the various risk evaluations presented to USEPA on July 17, 2015 and in the FS TM #1 materials submitted to USEPA via July 20, 2015 cover letter, no current or future unacceptable human health, ecological or soil-to-groundwater pathway risks were identified for surface and subsurface soil (OU-1). Therefore, no RAOs were deemed warranted for OU-1 soil (other than potentially for future property stewardship at the 1190 Church Road Property), and no further FS evaluations were deemed warranted for OU-1 soil at the 1180 Church Road and 351 Sumneytown Pike properties.

4.3 EPA Confirmation that FS Step 5 Completed

In their April 25, 2016 letter, USEPA confirmed that the project had completed "Step 5 – Tech Memo No. 1," as per the Final FS Work Plan (Golder, 2016d), approving the various risk management evaluations, including the background, Human Health Risk Assessment (HHRA), Screening Level Ecological Risk Assessment (SLERA), Baseline Ecological Risk Assessment (BERA) and soil-to-groundwater evaluations prepared on behalf of the Respondents. The USEPA further acknowledged that "Step 6: Identification and Screening of Remedial Alternatives for Detailed Analysis" was the next step in the FS process.

4.4 Draft/Revised/Final FS Work Plans

In response to the Draft FS Work Plan (Golder, 2008a), USEPA issued comments in a letter, dated April 13, 2009. A Final FS Work Plan (Golder, 2016d) was completed after the risk assessment and risk management elements of the RI/FS process were completed; it addressed the USEPA's April 13, 2009 comments. Based on their review of the Revised FSWP, USEPA issued minor comments in a letter, dated April 22, 2016. These comments were addressed in the Final FSWP, which was submitted to USEPA on May 20, 2016.

In their April 13, 2009 comments, USEPA further requested that, for those properties where the development of RAOs is warranted to address unacceptable risks associated with any complete human health, ecological, and/or soil-to-groundwater exposure pathways, a full list of appropriate alternatives ranging from No Action to Excavate and Offsite Disposal will be considered. As demonstrated in Section 5.1, no unacceptable risks or complete exposure pathways currently exist at the three Respondent properties. To address potential future direct contact exposure at isolated locations, it will be necessary to

maintain engineering/institutional controls and complete monitoring/reporting (i.e., property stewardship) at the 1190 Church Road property only. Because risk/exposure can be effectively mitigated without active remediation, Sections 6 and 7 do not evaluate a full range of alternatives.

To address USEPA comments to the draft FS Work Plan (Golder, 2008a), dated April 13, 2009, as outlined in the Final FS Work Plan (Golder, 2016d), a detailed justification is provided in Section 5.1 for dropping the 1190 Church Road property from further FS consideration on the basis of no complete exposure pathways (at isolated soil sampling locations) in consideration of existing institutional and/or engineering controls. The completion of the FS is not required per the risk management evaluations (considering existing engineering/institutional controls and depth to soil impacts); however, to complete the administrative record for the NP7 Site, identification, screening and detailed analysis for a limited number of remedial alternatives is provided in Sections 6 and 7 of this FFS Final Report.

In their April 22, 2016 conditional approval of the Final FS Work Plan (Golder, 2016d), USEPA requested that, even if the RAOs are only related to ongoing property stewardship activities, all such activities should be included and outlined under the Institutional and/or Engineering Controls category, as a means to keep the future owners/occupants duly informed of NP 7 Site-related issues. This comment was addressed in the Final FS Work Plan (Golder, 2016d) and in this FFS Final Report. Revised RAOs for 1190 Church Road are identified in Section 5.7.

5.0 DEVELOPMENT OF REMEDIATION GOALS/REVISED REMEDIAL ACTION OBJECTIVES

5.1 Risk Assessments and Risk Management Evaluations

Between 2012 and 2015, Camp, Dresser and McKee (CDM; USEPA's contractor) completed all major elements of the human health and ecological risk assessments and prepared the following RAs and related reports to document their findings:

- *North Penn Area 7 Superfund Site Background Soil Study*, Document No. 3232-017-CO-EPOU-02614. Updated March 4, 2005 (CDM, 2005). This applies to all properties at the NP7 Site.
- *Final BERA of Aquatic Habitats* Associated with the North Penn Area 7 Superfund Site (Operable Unit 1), Document No. 3330-022-RT-RISK-01992. Updated October 12, 2012 (CDM, 2012a). This applies to all properties at the NP7 Site.
- *Final SLERA of Terrestrial Habitats* Associated with the North Penn Area 7 Superfund Site (Operable Unit 1), Document No. 3330-022-RT-RISK-01939. Updated August 21, 2012 (CDM, 2012b). This applies to all properties at the NP7 Site.
- *Final HRRA for 351 Sumneytown Pike*, Document No. 3330-022-RT-RISK-02446. Updated March 21, 2014 (CDM, 2014a).
- *Draft Soil-to-Groundwater Remediation Goals Evaluation Report*, Document No. 3330-026-RT-OTHR-02503. Updated April 30, 2014 (CDM, 2014b).
- *Final HRRA for 1180 Church Road*, Document No. 3330-022-RT-RISK-02489. Updated April 30, 2014 (CDM, 2014c).
- *Final HRRA for 1190 Church Road*, Document No. 3330-022-RT-RISK-02446. Updated February 2015 (CDM, 2015).

The various CDM risk assessments and other related documents were reviewed as they became available, and were used to develop a series of Risk Management Technical Memoranda subsequently prepared by Golder to document the various evaluations performed on behalf of the Respondents to support remedial decision-making and the FS process. The human health (HH) and ecological risk assessments, as well as, the soil-to-groundwater pathway evaluation developed by USEPA and their contractor were used in developing the following technical memoranda, which are incorporated by reference throughout this FFS Final Report for OU-1 soil:

- *1180 Church Road Risk Assessment Evaluation Technical Memorandum* (Golder, 2014a). Approved by USEPA in an email dated August 3, 2015 (and confirmed in a letter, dated April 25, 2016)*351 Sumneytown Pike Risk Assessment Evaluation Technical Memorandum* (Golder, 2014b). Approved by USEPA in an email dated August 3, 2015 (and confirmed in a letter, dated April 25, 2016).
- *1190 Church Road Risk Assessment Evaluation Technical Memorandum* (Golder, 2014c). Approved by USEPA in an email dated August 3, 2015 (and confirmed in a letter, dated April 25, 2016).
- *Revised Background Evaluation Technical Memorandum* (Golder, 2016a). Approved by USEPA in a letter, dated April 25, 2016).

- *BERA Evaluation Technical Memorandum* (Golder, 2016b). Approved by USEPA in a letter, dated April 22, 2016.
- *Soil-to-Groundwater Pathway Evaluation Technical Memorandum* (Golder, 2016c). Approved by USEPA in a letter, dated April 25, 2016.

The results of the recent Supplemental Investigation (SI), which was conducted to provide supplemental chromium speciation data to support risk management and remedial decision-making for OU-1 soil during the FS (Golder, 2016e) are also incorporated. The SI Report was approved by USEPA in a letter, dated April 25, 2016.

5.1.1 Human Health Risk Assessment/Risk Evaluations

In order to determine the potential impacts to human health, risk assessment were undertaken for each property by CDM on behalf of USEPA. A summary of the risk assessment results, as well as, the conclusions of the risk evaluations are discussed in the following sections on a property-specific basis.

5.1.1.1 1180 Church Road

The results of the HHRA for the 1180 Church Road Property (CDM, 2014c) indicate that the current cancer risks and non-cancer health hazards are within or below USEPA target thresholds for all receptor scenarios; except for future residents exposed to impacted soil under the conservative Reasonable Maximum Exposure (RME) scenario. The calculated RME cancer risks for both the child and lifetime residential receptors marginally exceed the USEPA's target risk range, with the most significant potential risk drivers being chromium (based on the assumption that 100% of the total chromium is in the hexavalent form), arsenic, and benzo(a)pyrene. For the non-cancer RME calculations, only thallium was considered to be a non-carcinogenic risk driver for the property and was further evaluated. Of the primary risk drivers, concentrations of arsenic, chromium, and benzo(a)pyrene were determined to be consistent with background and not a site related concern (Golder, 2016a). For the remaining risk driver, thallium, the risk evaluation performed by Golder (Golder, 2014a), supporting a conclusion that the methodology used to analyze thallium exhibit a high rate of false positives (>99.9%), indicating that thallium is likely present in soil at lower concentrations or not at all. Therefore, thallium was determined to not be a site-related concern at the 1180 Church Road property[8]. As such, there is no unacceptable site-related risks to human health from current or future exposure to soils; therefore, no RAOs were developed for the human health pathway at the 1180 Church Road property.

[8] Thallium was not included in the CDM/EPA background study, and therefore a background comparison could not be made. In addition, the analytical method is prone to a high rate (99.9%) of false positives in soil. Therefore, thallium is either not present or the reported results artificially biased high. Even with high bias, all detected thallium concentrations (1.6 mg/kg to 2.8 mg/kg) are well below both the PADEP Clean Fill concentration limit (14 mg/kg) and Residential MSC (15 mg/kg) for thallium. In consideration of these factors, no further action was proposed for thallium during the Step 4 (6-Day Meeting held on July 17, 2015 at USEPA's regional offices in Philadelphia, PA), as documented in FS TM #1 (July 20, 2015 letter to USEPA). Based on their review of these two documents, the USEPA confirmed that the project had successfully completed Step 5 in the FS process (FS TM #1), as per the approved FSWP; therefore, no further action was required for thallium in soil (for either human health or ecological perspectives).

In addition, no COCs were retained based on the soil-to-groundwater evaluation (Golder, 2014a); therefore, no further action is warranted to address the soil-to-groundwater pathway and no RAOs were developed for the soil-to-groundwater pathway at the 1180 Church Road property.

5.1.1.2 351 Sumneytown Pike

The results of the HHRA for the 351 Sumneytown Pike property (CDM, 2014a) indicate that the current cancer risks are within or below USEPA target thresholds for all receptor scenarios except for potential future residents exposed to impacted soil under the conservative RME scenario. In addition, for both the RME and Central Tendency Exposure (CTE) calculations, there are no individual target-organ specific hazard indexes (HIs) that exceed the USEPA target HI of 1.0, indicating that there are no unacceptable non-carcinogenic hazards to human health. Based on the HHRA, as well as, the risk evaluation performed by Golder (Golder, 2014b), the most significant potential risk drivers are chromium (based on the assumption that 100% of the total chromium is in the hexavalent form), arsenic, and benzo(a)pyrene. Of the primary risk drivers, concentrations of arsenic and benzo(a)pyrene were determined to be consistent with background (Golder, 2016a). For the remaining primary risk driver, chromium, the results of the supplemental investigation (Golder, 2016e) indicated that chromium at the property exists primarily in the non-carcinogenic trivalent form, which indicates that risk to human health from exposure to chromium in soil is not of concern. There is no unacceptable site-related risks to human health from current or future exposure to soils; therefore, no RAOs were developed for the human health pathway at the 351 Sumneytown Pike property.

In addition, no COCs were retained based on the soil-to-groundwater evaluation (Golder, 2014b); therefore, no further action is warranted to address the soil-to-groundwater pathway and no RAOs were developed for the soil-to-groundwater pathway at the 351 Sumneytown Pike property.

5.1.1.3 1190 Church Road

The HHRA for the 1190 Church Road (CDM, 2015) subdivided the property into four areas (Areas A, B, C, and B/C), based on both current and potential future use. Based on the results of the HHRA and 1190 Church Road risk evaluation (Golder, 2014c), the primary current/future risk drivers were as follows:

- Area A – Thallium.
- Area B – Arsenic, benzo(a)pyrene, chromium (based on the assumption that 100% of the total chromium is in the hexavalent form), dibenz(a,h)anthracene, thallium, and vanadium.
- Area C - Arsenic, benzo(a)pyrene, chromium (based on the assumption that 100% of the total chromium is in the hexavalent form), dibenz(a,h)anthracene, mercury, thallium, and vanadium.
- Area B/C – Aluminum, arsenic, benzo(a)pyrene, chromium (based on the assumption that 100% of the total chromium is in the hexavalent form), dibenz(a,h)anthracene, manganese, thallium, and vanadium.

Based on the results of the background evaluation (Golder, 2016a), the supplemental investigation (Golder, 2016e), and the 1190 Church Road evaluation (Golder, 2014c), the following determinations were made on a chemical-specific basis:

- Aluminum - concentrations of aluminum were determined to be consistent with background and not a site-related concern.
- Arsenic– concentrations of arsenic were either consistent with background, at depths greater than 2 feet bgs, and/or covered by engineering/ institutional controls, indicating that arsenic is not a current concern, but may require future controls.
- Benzo(a)pyrene and dibenz(a,h)anthracene – concentrations were determined to be consistent with background and not a site-related concern.
- Chromium – Concentrations of chromium were determined to be consistent with background, covered by existing engineering/institutional controls, and predominantly existing in the non-carcinogenic trivalent form, indicating that concentrations of chromium are not a current concern but may require future controls.
- Manganese– Concentrations of manganese were either at depths greater than 2 feet bgs, and/or covered by engineering/institutional controls, indicating that manganese is not a current concern but may require future controls.
- Mercury – Concentrations of mercury were either at depths greater than 2 feet bgs, and/or covered by engineering/institutional controls, indicating that mercury is not a current concern but may require future controls.
- Thallium – Although concentrations of thallium were associated with potential non-carcinogenic elevated risk levels, the methodology used to analyze thallium exhibit a high rate of false positives (>99.9%), indicating that thallium is likely present in soil at lower concentrations or not at all. Therefore, thallium was determined to not be a site-related concern. (see footnote #8)
- Vanadium- concentrations of vanadium were determined to be consistent with background and not a site-related concern.

Based on the above analysis, it was determined that there is no unacceptable risks to human health from current exposure to soils at the 1190 Church Road property; however, controls may be needed in limited areas to protect potential future exposures.

5.1.2 Ecological Risk Assessment/Risk Evaluations

5.1.2.1 Screening Level Ecological Risk Assessment/Risk Evaluation

In order to best evaluate the results of the SLERA for terrestrial receptors prepared by CDM on behalf of USEPA (CDM, 2012b), the identified chemicals of potential ecological concern (i.e., COPECs; those chemicals with concentrations in soil that exceed ecological screening criteria) were evaluated on a property-specific basis. The results of the SLERA (CDM, 2012b) were used as the basis for the property-specific risk evaluations (Golder, 2014a, 2014b, and 2014c) discussed in the remainder of this section. During USEPA Meeting No. 2 on July 17, 2015, USEPA indicated their concurrence not to advance the SLERA for terrestrial receptors to the BERA stage.

5.1.2.1.1 1180 Church Road

Based on the property-specific evaluation, as summarized in the *Risk Evaluation Report for 1180 Church Road* (Golder, 2014a), the following conclusions were made:

- Pentachlorophenol and thallium were not detected and are therefore not of concern.
- Arsenic, chromium, selenium, vanadium, and zinc concentrations are consistent with background and are therefore not considered a site-related concern.
- Arsenic, barium, cadmium, cobalt, copper, lead, manganese, mercury, nickel, and zinc mean concentrations are below their respective screening criteria indicating that they are not of concern.
- Although the mean concentration of manganese is above its screening criteria and background threshold value at one location, due to its physical location (between a building and a sidewalk, near a parking lot), it is not in an areas providing suitable habitat and is therefore not a significant ecological concern
- For the food chain analysis, when assuming a mean concentration and a lowest observable adverse effect level (LOAEL), it was determined that arsenic, chromium, and zinc have hazard quotients (HQ) of less than 1.0, indicating that they are not of concern.

Based on this evaluation, there are no remaining COPECs and thus no predicated adverse ecological effects from soil at the 1180 Church Road property. Although localized concentrations of manganese/ selenium at 1180 Church Road are greater than the conservative plant/invertebrate screening levels, both metals are one or more orders of magnitude below respective PADEP Clean Fill concentration limits; therefore, no remedial action is warranted and no RAOs were developed for SLERA pathways at the 1180 Church Road Property.

5.1.2.1.2 351 Sumneytown Pike

Based on the property-specific evaluation, as summarized in the *Risk Evaluation Report for 351 Sumneytown Pike* (Golder, 2014b), the following conclusions were made:

- Pentachlorophenol and thallium were not detected and are therefore not of concern.
- Arsenic, manganese, selenium, and vanadium concentrations are consistent with background and are therefore not a site-related concern.
- Arsenic, barium, cadmium, cobalt, lead, manganese, and mercury mean concentrations are below their respective screening criteria indicating that they are not of concern.
- Elevated concentrations of chromium, copper, nickel, and zinc were reported for one single sample (BS06-01_G), which was determined to have been impacted by Site features, supporting a conclusion that they are not a site-related concern.
- For the food chain analysis, when assuming a mean concentration and a LOAEL, it was determined that arsenic, chromium, and zinc have HQ of less than 1.0, indicating that they are not of concern.

Based on this evaluation, there are no remaining COPECs and thus no predicated adverse ecological effects from soil at 351 Sumneytown Pike property.

At 351 Sumneytown Pike, SLERA potential risk drivers, included arsenic, chromium, copper, manganese, nickel, selenium, vanadium, and zinc. Arsenic, manganese and vanadium levels were consistent with Site background therefore, no further evaluation necessary. Although chromium, copper, nickel, and zinc concentrations at one location sample BS06-01_G exceeded the conservative plant/invertebrate screening levels, all detected chromium, copper, nickel, selenium, and zinc (including those at sample location BS06-01_G) were below respective PADEP Act 2 Clean Fill concentration limits. Further, all COPECs detected at levels resulting in wildlife LOAEL-based HQ < 1; therefore, no remedial action is warranted and no RAOs were developed for SLERA pathways at the 351 Sumneytown Pike property.

5.1.2.1.3 1190 Church Road

Based on the property-specific evaluation, as summarized in the *Risk Evaluation Report for 1190 Church Road* (Golder, 2014c), the following conclusions were made:

- Chromium, cobalt, selenium, and zinc concentrations are consistent with background and are therefore not a site-related concern.
- Arsenic, barium, cadmium, copper, lead, nickel, and zinc mean concentrations are below their respective screening criteria indicating that they are not of concern.
- Although a number of concentrations of arsenic, manganese, and mercury are above screening criteria, and background threshold values, the specific concentrations are either at depths greater than 2 feet bgs and/or covered by existing institutional/engineering controls, indicating that they are not of concern.
- Although concentrations of thallium were associated with concentrations above its screening criteria, the methodology used to analyze thallium exhibit a high rate of false positives (>99.9%), indicating that thallium is likely present in soil at lower concentrations or not at all. Therefore, thallium was determined to not be of concern. (see footnote #8).
- For the food chain analysis, when assuming a mean concentration and a LOAEL, it was determined that arsenic, chromium, and zinc have HQ of less than 1.0, indicating that they are not of concern.

Based on this evaluation, there are no remaining COPECs and thus no predicted adverse ecological effects for soil at the 1190 Church Road property.

The potential SLERA risk drivers at 1190 Church Road included arsenic, chromium, cobalt, manganese, mercury, selenium, thallium, vanadium, and zinc. Concentrations of arsenic, cobalt, manganese, mercury, selenium, vanadium, and zinc are either:

- Consistent with Site background or at levels below respective PADEP clean fill concentration limits.
- Covered by engineered controls (existing building, pavement, etc.).
- Located in subsurface soil (i.e., greater than 2 feet below grade).

Note that these constituents are only present in the soil placed during development, as part of approved Act 2 closure under USEPA Prospective Purchaser Agreement, at higher concentrations than RI soil samples (but below PADEP Clean Fill concentration limits). No COCs were detected at levels resulting in a wildlife LOAEL-based HQ > 1. Therefore, no remedial action is warranted, and no RAOs were developed for SLERA pathways at the 1190 Church Road property.

5.1.2.2 Baseline Ecological Risk Assessment/Risk Evaluation

The BERA (CDM, 2012a) evaluated a number sediment and soil samples at off-property locations. In order to best evaluate whether or not the reported COC are Site-related, they were evaluated on a property-specific basis, when possible. Some sample locations have no obvious connection to any property and were evaluated on an individual basis. Overall, the identified COPECs, which include pesticides, PCBs, SVOCs (namely polycyclic aromatic hydrocarbons-PAHs), and metals are likely related to anthropogenic background and not property-specific activities. Pesticides, while identified in the BERA as potential COPECs, were determined to be unrelated to Site-activities and are not of concern (CDM, 2012a). As discussed further below, Golder performed a risk management evaluation (Golder, 2016b) based on the BERA (CDM, 2012a).

5.1.2.2.1 Sample Location WC-SC-20

At sample location WC-SC-20, which is closest to and downstream of the 351 Sumneytown Pike property, the following conclusions were made based on the results of the BERA analysis (Golder, 2016b):

- Acenapthene, acenapthylene, and fluorene were not detected, indicating that they are not of concern.
- Benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, cyanide, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and manganese were all reported at concentrations greater than those observed in soil samples collected at the upstream 351 Sumneytown Pike property, indicating that they are not a property-related concern.
- Concentrations of anthracene, arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, copper, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, lead, manganese, nickel, phenanthrene, and zinc were consistent with background are not a property-related concern.

Based on this evaluation, there are no remaining COPECs associated with sample location WC-SC-20.

5.1.2.2.2 Sample Location WC-BM-21

At sample location WC-BM-21, which is upstream of the 1190 Church Road property, but relatively distant from the property, the following conclusions were made based on the results of the BERA analysis (Golder, 2016b):

- Concentrations of acenapthene, acenapthylene, anthracene, arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, copper, cyanide, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, lead, manganese, nickel, phenanthrene, and pyrene were consistent with background are therefore not a property-related concern.
- Concentrations of all remaining COPECs (Aroclor 1260, chromium, and zinc) cannot be credibly linked to the 1190 Church Road property, which is relatively distant from the sample location, indicating that they are therefore not a property-related concern.

Based on this evaluation, there are no remaining COPECs associated with sample location WC-BM-21.

5.1.2.2.3 Towamencin Creek Sediment

For the Towamencin Creek sediment sample locations, which were taken in an area adjacent to the 1180 Church Road property, the following conclusions were made based on the results of the BERA analysis (Golder, 2016b):

- All identified COPECs were reported at concentrations greater than at the 1180 Church Road property, indicating that they are therefore not a property-related concern.
- Concentrations of anthracene, antimony, barium, benzo(a)anthracene, benzo(a)pyrene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, copper, dibenz(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, iron, manganese, phenanthrene, and pyrene were consistent with background are therefore not a property-related concern.

Based on this evaluation, there are no remaining COPECs for Towamencin Creek sediment samples indicating no adverse ecological impacts attributable to the 1180 Church Road property.

5.1.2.2.4 Towamencin Creek Wetland Soils

For the Towamencin Creek wetland soils sample locations, which were taken in an area adjacent to the 1180 Church Road property, the following conclusions were made based on the results of the BERA analysis (Golder, 2016b):

- All identified COPECs were reported at concentrations greater than at the 1180 Church Road property, indicating that they are not a property-related concern.
- Concentrations of arsenic, benzo(a)anthracene, benzo(g,h,i)perylene, chrysene, fluoranthene, pyrene, and vanadium were consistent with background and are therefore not a property-related concern.

Based on this evaluation, there are no remaining COPECs for Towamencin Creek wetland soil samples, which supports a conclusion that no adverse ecological impacts are attributable to the 1180 Church Road property.

5.1.2.2.5 Site Reconnaissance and Aerial Photograph Summary – 1180 Church Road

Based on discussion at the July 17, 2015 meeting at EPA's Region III offices in Philadelphia, PA, Golder performed additional reconnaissance in July and August 2015 to evaluate current conditions within the wooded wetland area, located across Pennbrook Parkway from the 1180 Church Road property, and identify non-Site-related inputs to the wooded wetland from various other sources in the vicinity. The site reconnaissance performed by Golder confirmed that: (1) likely, less than 10% of the stormwater runoff to the wooded wetland is potentially related to the 1180 Church Road property; (2) other than asphaltic grit and sediment downstream of culverts not associated with the 1180 Church Road property, no other potential discharges to the wooded wetland were observed; and (3) organic matter/detritus that covers the ground surface will act to reduce the bioavailability of various COPECs (Golder, 2016b).

Golder also performed an extensive aerial photograph evaluation that extended back to 1948 to more fully understand the sequence of development in the immediate area of the 1180 Church Road property, as well as, apparent conditions over time in the wooded wetlands. In summary, based on the aerial photograph evaluation, Golder confirmed the following: (1) the railroad pre-dates all other industrial development in the area and represents the primary long-term potential source of stormwater runoff to the wooded wetland – the railroad tracks have existed in the same location for well over 50 years; (2) former manufacturing operations at the 1180 Church Road property occurred for only eight years (between 1966 and 1974); and (3) the area of the wooded wetland has increased consistently and substantially since 1967, when the first industrial development of the area (other than the railroad tracks) occurred (Golder, 2016b).

The site reconnaissance and aerial photograph review provided an additional lines of evidence that supports a conclusion that no further evaluation is warranted to address COPECs in wooded wetland soil.

In the summer of 2016, the USEPA's Biological Technical Assistance Group (BTAG) performed site reconnaissance and confirmed that organic material was observed throughout the wooded wetland area, consistent with the conclusions of Golder's site visits conducted in July and August 2015. In the April 6, 2017 comment letter to the Respondents, the USEPA stated that a qualitative assessment of the organic material present in the wooded wetland had been conducted, and it appeared that sufficient organic matter was present that the metals detected were likely not bioavailable at levels that would cause a risk to ecological receptors. Therefore, no further action is warranted by the Respondents for the wooded wetland area.

5.2 Soil-to-Groundwater Pathway Evaluation

As discussed in Section 5.1, no COCs were retained for the 1180 Church Road or 351 Sumneytown Pike properties, based on the soil-to-groundwater evaluations (Golder, 2014a; Golder 2014c). Therefore, no further action is warranted to address the soil-to-groundwater pathway, and no RAOs were developed for the soil-to-groundwater pathway at either of these two properties. Based on CDM's soil-to-groundwater pathway report (CDM, 2014b), several COCs were retained for the soil-to-groundwater pathway at the 1190 Church Road property. As summarized below, these COCs were further evaluated by Golder on behalf of the Respondents (Golder, 2016c).

To complete the source-area-specific soil-to-groundwater pathway evaluation (Golder, 2016c), Golder utilized the report entitled *Draft Soil-to-Groundwater Remediation Goals Evaluation Report for North Penn Area 7 Superfund Site, Operable Unit 1*, dated May 20, 2014 (SGRG Report; CDM, 2014b) and built upon CDM's evaluation by developing and using refined input parameters and assumptions (including infiltration rate, source thickness and average contaminant concentrations) specific to each of the source term areas in the *SGRG Report* for the 1190 Church Road property. The results of Golder's *Soil-to-Groundwater Pathway Evaluation Technical Memorandum* (Golder, 2016c), using USEPA Region III SSRG Tool (Kargbo, 2011), concluded that none of the observed COC concentrations at the 1190 Church Road property exceed applicable SSRG values. Therefore, in consideration of the inherently conservative nature of the SSRG Tool (including, but not limited to, steady state conditions and infinite source term), no further evaluation/action is required for either inorganic or organic COCs at the 1190 Church Road property in relation to the soil-to-groundwater pathway. RAOs were not developed and neither organic nor inorganic compounds were considered further in the FS process relative to the soil-to-groundwater pathway.

5.3 Summary of Risk Assessment/Risk Management Evaluation

The analyses presented in the USEPA Risk Assessments and the various risk evaluation technical memoranda summarized above (Golder, 2014a; 2014b; 2014c; 2016a; 2016b; and 2016c) and the *SI Report* (Golder, 2016e) support the following conclusions:

- 1180 Church Road - All of the constituents identified as potential risk drivers in the HHRA (CDM, 2014c), BERA (CDM, 2012a), SLERA (CDM, 2012b) and the Soil-to-Groundwater Remediation Goals Evaluation (CDM, 2014b) for the 1180 Church Road property were either detected at concentrations consistent with local background or that do not pose an unacceptable risk based on the results of the risk evaluation. Therefore, the detected constituents do not comprise a property-related concern to human or ecological receptors nor a source of adverse impacts to groundwater (Golder, 2014a, 2016a, 2016b, and 2016c). Based on these conclusions the development of risk-based RAOs is not warranted; therefore, no further action in terms of the FS was performed for the 1180 Church Road property.
- 351 Sumneytown Pike - All of the constituents (including the supplemental data obtained for hexavalent chromium) identified as potential risk drivers in the HHRA (CDM, 2014a), BERA (CDM, 2012a), SLERA (CDM, 2012b) and the Soil-to-Groundwater Remediation

Goals Evaluation (CDM, 2014b) for the 351 Sumneytown Pike property were detected at concentrations consistent with local background or that do not pose an unacceptable risk. Therefore, the detected constituents do not comprise a property-related concern to human or ecological receptors nor a source of adverse impacts to groundwater (Golder, 2014b; 2016a; 2016b; 2016c; and 2016e). Based on the conclusions the development of risk-based RAOs is not warranted; therefore, no further action in terms of the FS was performed for the 351 Sumneytown Pike property.

- 1190 Church Road
  - All of the constituents (including hexavalent chromium) identified as being of potential concern in the HHRA (CDM, 2015), BERA (CDM, 2012a), and SLERA (CDM, 2012b) were either detected at concentrations consistent with local background or do not pose a current unacceptable risk. Therefore, they do not comprise a property-related concern to current human or ecological receptors (Golder, 2014c; 2016a; 2016b; and 2016c and 2016e). However, controls are required to address potential future human health direct contact exposure to soil in limited areas.
  - Constituents identified as being of potential concern in the *Soil-to-Groundwater Remediation Goals Evaluation Report* (CDM, 2014b) for the 1190 Church Road property, based on a refined property-specific SGRG evaluation, do not comprise a source of adverse impacts to groundwater nor do they pose a concern with respect to the soil-to-groundwater exposure/risk pathway (Golder, 2016c).

Based on the various risk management evaluations performed in support of remedial decision-making and the FS process, the development of risk-based RAOs to address the current and future direct contract pathway for human and ecological receptors is not warranted as part of the FS process for the 1180 Church Road and 351 Sumneytown Pike properties. These two properties also do not comprise potential sources of adverse impacts to groundwater (Golder, 2014a; 2014c; 2016a; 2016b; and 2016c). Therefore, these two properties are not carried through the remaining stages of the FS.

With respect to the 1190 Church Road property, the development of risk-based RAOs to address the direct contract pathway for current human exposure and ecological exposures is not warranted. Further, in consideration of the multiple lines of evidence documented in the SGRG Evaluation, no further evaluation/action is required for either inorganic or organic constituents in relation to the soil-to-groundwater pathway at the 1190 Church Road property (Golder, 2016c). However, potential for future direct contact exposure to limited areas requires the development of RAOs to control these potential future exposures. As a result, RAOs were developed for the 1190 Church Road property, and the property was carried through the remainder of the FS process. RAOs were developed in support of future property stewardship, such as, institutional/engineering controls and related inspections, monitoring, maintenance, land use confirmation, and reporting.

5.4 Preliminary Remediation Goals – 1190 Church Road

Developing PRGs is the first activity performed during the identification and screening of remedial technologies, which is the first major step in the FS process (USEPA, 1988a). Based on potential site-

specific human and/or ecological receptor exposure to site COCs, PRGs provide medium-specific chemical concentrations that are protective of human health and the environment. There are two PRG types:

- Risk-based PRGs.
- ARAR-based PRGs.

Risk-based PRGs consider site-specific conditions regarding frequency/duration of human health and/or ecological exposures and the cumulative toxicity/risk associated with the chemicals detected. *ARAR-based PRGs* provide compound-specific regulatory standards that account for human health and ecological exposure/risk in a generic manner (i.e., ARAR-based PRGs are generally not considered site-specific).

Soil PRGs were developed for the 1190 Church Road property for those COCs in surface and subsurface soil for which potential future exposure could result in an unacceptable cumulative risk to human receptors. Controlling PRGs were developed using a step-wise process, as outlined below:

1. Candidate *human health PRGs* (Table 4) related to direct contact were determined by establishing concentrations of various COCs that are within the acceptable ranges for carcinogenic and non-carcinogenic risk, consistent with applicable USEPA risk assessment guidance. This evaluation was performed for the most sensitive human receptor for direct contact with both surface and "total" soil, which includes both surface and subsurface soil.
2. *PADEP Medium-Specific Concentrations* (MSCs) for human health and other available numeric criteria, most notably the *PADEP Clean Fill Limits*, were then compared to the various candidate PRGs (Table 4); the more conservative of the candidate PRGs versus PADEP MSCs was retained for each COC in soil.
3. *Controlling PRGs* (Tables 5 and 6) were determined for soil after accounting for background, land use, and potential site-specific human health receptors.

Controlling PRGs were developed for those COCs in surface and subsurface soil for which potential exposure existed that could result in an unacceptable cumulative risk to human receptors. Because the FS scope is limited to OU-1 soil (Respondent-lead soil), PRGs were not developed for other media or operable units, including OU-2 (Superfund-lead soil); OU-3 (groundwater); and OU-4 (vapor intrusion).

This FFS Final Report considers only those receptors/pathways that are consistent with anticipated use(s) on the specific property. Specifically, direct contact PRGs for human health were developed in consideration of existing and potential future institutional controls for potential future human receptors (including residents, industrial workers, utility/construction workers, and recreational users) at the 1190 Church Road property only. The step-wise process and results for Controlling PRG determination is outlined in Table 5.

5.4.1 Chemical Specific ARARs/TBCs

Chemical-specific ARARs and TBCs define acceptable exposure levels for a specific chemical in an environmental medium (i.e., soil, water, air); they may provide actual cleanup level values or the basis of calculating cleanup levels. The PADEP MSCs comprise an example of a chemical-specific ARAR. An example of a chemical-specific TBC is the PADEP Management of Fill Policy (PADEP, 2010; PADEP, 2014), which provides procedures for determining whether material is clean fill or regulated fill and default criteria for documenting clean fill in the Commonwealth. Chemical-specific ARARs and TBCs are compiled in Table 1.

5.4.2 Candidate Human Health Direct Contract PRGs

The initial human health COCs were identified through comparison of COC concentrations to the USEPA, May 2016, Regional Screening Level (RSLs) (Table 4), which assume a Target carcinogenic Risk (TR) of 1.0E-06 and a Target non-carcinogenic Hazard Quotient (THQ) HQ of 0.1 (https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-may-2016). The Candidate *human health PRGs* (Table 4) related to direct contact were established using COC concentrations that are within the acceptable ranges for carcinogenic and non-carcinogenic risk, as determined by the risk assessments performed by USEPA and its contractors (CDM, 2012a, 2012b, 2014a, 2014b, 2014c, and 2015) and the subsequent risk management evaluations performed on behalf of the Respondents (Golder, 2014a, 2014b, 2014c, 2016a, 2016b, 2016c and 2016e). The revised Statewide Health Standards - MSCs published in the January 2011 Pennsylvania Bulletin and are provided on PADEP's website: http://www.dep.pa.gov/Business/Land/LandRecycling/Standards-Guidance-Procedures/Pages/ Statewide-Health-Standards.aspx#.V1cEhhfD9D8) also comprise Candidate PRGs for human health.

The methodology used to calculate Site-specific human health PRGs was to adjust the most recent chemical-specific RSLs (USEPA, 2016) for residential soil by Site-specific target risk and target hazard quotient. The Site-specific target risks and target hazard quotient were selected on a property and chemical-specific so that if the PRGs were met, the resulting cumulative cancer risk and target organ-specific non-cancer hazard quotient would be less than 1.0×10^{-4} and 1.0, respectively. The human health PRG calculations are presented in Table 6.

5.4.3 PADEP ARARs/TBCs

As discussed above, ARARs for both human health and soil-to-groundwater pathways were obtained from the revised PADEP MSCs, published in the January 2011 Pennsylvania Bulletin and provided on the PADEP website (http://www.dep.pa.gov/Business/Land/LandRecycling/Standards-Guidance-Procedures/Pages/Statewide-Health-Standards.aspx#.V1cEhhfD9D8). In addition, the PADEP *Clean Fill Limits* are potential TBCs. The candidate human health PRGs (Table 4) were compared to the appropriate PADEP MSC; the more conservative of the human health PRGs versus PADEP MSCs was retained.

5.4.4 Determination of Controlling PRGs

As described previously, COCs below background were eliminated from the PRG process. Controlling PRGs were assessed to determine whether compounds that exceed them were reasonably attributed to the site/property, and whether adequate information was available to conclude that the Controlling PRGs are appropriate from remedial decision-making and risk management standpoints on a property-specific basis. Controlling PRGs for soil are presented in Table 5. If a particular cell in the table contains a dash, the COC did not present an unacceptable risk or was below background; therefore, no PRG was developed for that COC/pathway.

As a precursor to the identification and screening of remedial technologies/process options, detailed FS/alternatives analysis and the FFS Final Report (Sections 6 and 7), COCs that exceed one or more Controlling PRG in soil at isolated sampling locations on the 1190 Church Road Property will be addressed through risk management strategies, as described in Section 5.6.

5.5 Revised FS Approaches

During the 60-Day Meeting on July 17, 2015, the Respondents presented preliminary FS approaches for the NP 7 properties. The FS approaches were revised based on the revised risk management evaluations, which were approved by the USEPA in a letter, dated April 22, 2015. The revised FS approaches, based on the results of various risk management evaluations are summarized below:

- As presented at the 60-Day Meeting on July 17, 2015, and confirmed through various subsequently completed evaluations, as identified below, no preliminary RAOs developed for any of the pathways evaluated (i.e., human health, ecological, and soil-to-groundwater).
- Supplemental Investigation for chromium speciation (Golder, 2016e) concluded that hexavalent chromium/chromium does not present an unacceptable risk to human health or ecological receptors or from a soil-to-groundwater pathway standpoint. No revision of RAOs necessary based on SI results.
- Based on the revised background (Golder, 2016a) and BERA (Golder, 2016b) evaluations, performed on behalf of the Respondents, no revision of RAOs necessary.

As outlined during the 60-day meeting, no further evaluation of General Response Actions (GRAs) or remedial alternatives was warranted for OU-1 soil at any of the three NP 7 properties, including the 351 Sumneytown Pike property, the 1180 Church Road property and the 1190 Church Road Property.

5.6 Risk Management Strategies for Isolated Sample Locations at 1190 Church Road

Notwithstanding the above, a limited number of soil sampling locations at the 1190 Church Road property were determined to contain at least one COC at concentrations above Controlling PRGs and not consistent with background, as identified below:

- Arsenic – AB13-9.5, AB19-24/24D, AB20-19.5, AB-40-09, and AB44-06.
- Mercury – AB55-5.5.
- Manganese – AB20-19.5, AB72-09, AB74-10/10D, AB77-9.5, and AB78-10.

As demonstrated on Table 6 and shown on Figure 2, all of the soil sampling locations on the 1190 Church Road property that contain COCs exceeding one or more Controlling PRG are situated at depths greater than 2 feet bgs, and are located beneath existing engineering controls (building slabs, roadways, and parking lots), and/or within the bounds of existing institutional controls. As a result, the development of RAOs (other than those in support of future property stewardship, such as, institutional/engineering controls and related inspections, monitoring, maintenance, land use confirmation, and reporting) is not warranted for protection of the human health, ecological and soil-to-groundwater pathways with respect to the 1190 Church Road property. Table 7 provides a summary of constituent names, sample locations/depths, detected concentrations, PRGs, and background concentrations.

Outstanding USEPA comments (as outlined in their April 22, 2016 comment letter) state that "Even if RAOs are property stewardship activities, all such activities should be included and outlined under the Institutional and/or Engineering Controls category, as a means to keep the future owners/occupants duly informed of issues related to the Site." Therefore, Sections 6 and 7 consider the No Action alternative and alternatives consisting of engineering and institutional controls only. This step is not required per the risk management evaluations (considering depths to soil impacts and existing engineering/institutional controls); however, to complete the administrative record for the NP7 Site, identification, screening, and detailed analyses for a limited number of remedial alternatives is presented in the remainder of this report.

5.7 Revised RAOs – 1190 Church Road

Based on the results of FS Steps 1 through 5 (including the SI results, which demonstrated that chromium is not a human health or ecological risk/exposure issue), the following RAOs are applicable to the 1190 Church Road property:

- Prevent human and ecological exposure to soils containing COCs at concentrations that exceed at least one Controlling PRG and/or are inconsistent with background.
- Facilitate current property use.

The remedial alternatives evaluated in Steps 6 and 7 of the FS process, as summarized in Sections 6 and 7 of this FFS Final Report, achieve the revised RAOs to varying degrees of completeness.

6.0 IDENTIFICATION AND SCREENING OF REMEDIAL TECHNOLOGIES – 1190 CHURCH ROAD

Based on the revised Controlling PRG evaluation (Section 5.4), FS approaches (Section 5.5), and risk management strategy development and assessment (Section 5.6), revised RAOs (Section 5.7) were developed to ensure ongoing property stewardship in relation to institutional/engineering controls (and related inspections, monitoring, maintenance, land use confirmation, and reporting) at the 1190 Church Road property.

None of the areas warrant the development and evaluation of GRAs or remedial alternatives for protection of human health, ecological and soil-to-groundwater pathways with respect to any of the three NP7 properties. However, as a conservative measure meant solely to complete the administrative record for the NP 7 site by documenting institutional and engineering controls, as well as, address all outstanding USEPA comments, the remainder of Section 6 identifies and screens a limited range of potential remedial technologies/alternatives associated with ongoing property stewardship. Section 6 discusses the following required FS components (for ongoing property stewardship only):

- Final Remedial Action Objectives.
- Potential Remedial Technologies/Alternatives.
- Remedial technology screening results.
- Remedial alternatives for detailed analysis.
- Location- and action-specific ARARs to be considered in detailed analysis.

Section 7 documents the detailed/comparative analysis of remedial alternatives, including No Action and Institutional and/or Engineering Controls, against the required National Contingency Plan (NCP) criteria.

6.1 Identification of GRAs and Potential Remedial Options

Although not strictly warranted for protection of human, ecological and/or soil-to-groundwater receptors, given current mixed commercial and residential use, the only feasible GRAs/remedial technologies are:

- **No Action** – required by the NCP.
- **Existing Institutional and Engineering Controls.**
- **Revised Institutional and/or Engineering Controls**.

Containment, removal, treatment, and disposal options are either not applicable or feasible, based on the various Respondent risk management evaluations, in consideration of current and planned future Site conditions/uses.

No Action - The No Action alternative is required by the NCP and used to establish a baseline from which to compare other remedial alternatives. A five-year review would be performed to evaluate the

effectiveness of the remedy, the distribution of COCs, and a determination of whether Site-related contamination (i.e., COCs above Controlling PRGs) has spread beyond its current extent. If necessary, appropriate remedial actions would be considered at the time of the five-year review, to ensure the remedy remains protective of human health and the environment.

Existing Institutional and Engineering Controls - Existing Institutional and/or Engineering Controls, include deed restrictions to limit current/future access and Site/groundwater use at the 1190 Church Road property. Institutional/engineering controls would provide ongoing protection of human, ecological and soil-to-groundwater receptors from exposure to Site COCs. Although engineering controls physically protect against direct contact, and help reduce or eliminate the potential for a complete soil-to-groundwater pathway, institutional controls are generally not effective in precluding COC migration or reducing COC mass. Typically, deed restrictions are recorded at the county to document restrictions on future Site use.

Existing deed restrictions recorded with Montgomery County (Appendix B) for the 1190 Church Road property include the following activity and use limitations:

- Wells for groundwater use shall not be installed and groundwater shall not be used (property-wide).
- In various areas of concern, as shown on Figure 2, the following measures must be taken/maintained:
  - Vapor barriers shall be installed and maintained under all buildings.
  - Caps consisting of clean fill of at least 2 feet in depth or asphalt paving shall be installed and maintained over all areas of concern above which buildings are not constructed.
  - Soil underlying caps shall not be excavated or otherwise disturbed unless the material disbursed in appropriate characterized and managed.

Revised Institutional and/or Engineering Controls – The Revised Institutional and/or Engineering Controls alternative would include modifying existing deed restrictions to limit current/future access and Site/groundwater use to cover only those isolated sampling locations where COC concentrations exceed Controlling PRGs and/or are inconsistent with background (Section 5.6). Revising institutional and/or engineering controls would provide equal or greater protection of human, ecological and soil-to-groundwater receptors from exposure to Site COCs (as existing engineering/institutional controls).

6.2 Remedial Technology Screening Results

The remedial technology evaluation involved assessment of the above options on the basis of the following three criteria: effectiveness, implementability and relative cost. The evaluation focuses on effectiveness and de-emphasizes implementability and relative cost, all three of which are defined below:

- **Effectiveness** – effectiveness in consideration of COCs, site-specific conditions, estimated media quantity and strictly meeting Controlling PRGs during remedy construction and implementation.
- **Implementability** – technical and administrative feasibility; evaluation of pre-treatment standard requirements (not applicable for identified remedial options), management of residuals, and relative ease or difficulty in constructing/implementing the remedy and performing subsequent operation and maintenance (O&M) activities.
- **Relative Cost** – both capital and O&M costs; based on engineering judgement; classified as low, medium, or high relative to other remedial options.

The No Action alternative is required by the NCP as a baseline; it is the least effective, most implementable, and most cost-effective (i.e., low relative to other options) remedial technology/process option.

Existing Institutional and Engineering Controls is more effective than the No Action alternative and equally as effective as the Revised Institutional and/or Engineering Controls. It is less implementable than the No Action option and is high relative to the other options in terms of relative cost.

The Revised Institutional and/or Engineering Controls option is as effective and is more implementable than Existing Engineering and/or Institutional Controls. Revised Engineering and Institutional Controls are moderate in terms of cost relative to the other two remedial technologies/process options (i.e., No Action and Existing Engineering and Institutional Controls).

6.3 Location- and Action-Specific ARARs

Action-specific ARARs/TBCs set controls or restrictions on the design, implementation, and performance levels of activities related to the management of hazardous substances or COCs. The principal Federal, State and municipal/local action-specific ARARs/TBCs that may be applied to potential remedial alternatives for OU-1 are summarized in Table 2. Because no active remedial actions are associated with any of the remedial technologies/process options/alternatives screened and evaluated during the FS process, action-specific ARARs are not applicable.

Location-specific ARARs are restrictions placed on the concentrations of contaminants or the conduct of activities due to the site location, resources, or specific environmental features. The primary Federal, State and local, municipal location-specific ARARs/TBCs that may be applied to potential remedial alternatives for OU-1 soil are summarized in Table 3. Because no active remedial actions are associated with any of the remedial technologies/process options/alternatives screened and evaluated during the FS process, location-specific ARARs are not applicable.

6.4 Remedial Alternatives for Detailed Analysis

Based on the remedial technology screening results, the following remedial alternatives were retained for detailed analysis for the 1190 Church Road property (Section 7):

- Alternative 1 - No Action: required by the NCP.
- Alternative 2 - Existing Institutional and Engineering Controls.
- Alternative 3 – Revised Institutional and/or Engineering Controls.

7.0 DETAILED ANALYSIS OF ALTERNATIVES – 1190 CHURCH ROAD

7.1 Remedial Alternatives for Detailed Analysis

The following remedial alternatives were retained for detailed analysis for the 1190 Church Road property to complete the administrative record for OU #1 at the NP 7 Site (and address all outstanding USEPA comments):

- Alternative 1 - No Action: required by the NCP.
- Alternative 2 - Existing Institutional and Engineering Controls.
- Alternative 3 – Revised Institutional and/or Engineering Controls.

The detailed analysis of Site-wide alternatives for the FS is based upon the nine evaluation criteria defined in 40 CFR § 300.430 (e)(9). The criteria include two “threshold criteria,” which must be satisfied for an alternative to be selected, five “balancing criteria,” which are used to evaluate the trade-offs between alternatives, and two “modifying criteria” (state acceptance and community acceptance) that are assessed during the public comment period following USEPA’s publication of a Proposed Remedial Action Plan (PRAP). The threshold and balancing criteria considered in the FS, and the modifying criteria, which will be addressed by USEPA after the FS has been completed, are described below.

Threshold Criteria

- Overall Protection of Human Health and the Environment: Under this criterion, an alternative is assessed to determine whether it can adequately protect human health and the environment over the short- and long-term from unacceptable risks posed by hazardous substances, pollutants or COCs, by eliminating, reducing or controlling exposures to levels established during development of PRGs.
- Compliance with ARARs: This criterion evaluates whether and how the alternative attains applicable or relevant and appropriate requirements under federal environmental laws and state environmental, facility siting laws, local/municipal code, or provides grounds for invoking the legal waiver of such requirements.

Balancing Criteria

- Short-Term Effectiveness: This criterion evaluates the impacts of the remedial alternative during remedy construction with respect to human health and the environment.
- Reduction of Toxicity, Mobility, and Volume through Treatment: Under this criterion, the degree to which an alternative employs recycling or treatment that reduces toxicity, mobility, or volume is assessed, including how treatment is used to address the principal threats posed at the Site. As indicated previously, no potential Principal Threat Waste or source areas exist.
- Long-Term Effectiveness and Permanence: Under this criterion, a remedial alternative is assessed for the long-term effectiveness and permanence it affords, along with the degree of uncertainty that the alternative will prove successful.
- Implementability: This criterion addresses a remedial alternative’s technical/administrative feasibility, as well as, the availability of various services and materials required.

- Cost: This criterion addresses the estimated capital and operation and maintenance (O&M) costs (at net present worth) for implementing a remedial alternative to the level necessary for comparison with other alternatives; typical accuracy of plus 50% and minus 30%.

Modifying Criteria

- State Acceptance. This criterion, which is ongoing throughout the RI/FS process, reflects the statutory requirement to provide for substantial and meaningful state involvement.
- Community Acceptance. This criterion refers to the community's comments on remedial alternatives under consideration, where "community" is broadly defined to include all interested parties. These comments are taken into account throughout the FS process. However, only preliminary assessment of community acceptance can be conducted during the development of the FS, since formal public comment will not be received until after the public comment period for the preferred alternative is held.

The first seven criteria are addressed in this FFS Final Report. State acceptance will be evaluated after PADEP has reviewed and commented on this FFS Final Report. Community acceptance will be addressed in the ROD that will be finalized after the public comment period for the PRAP. State and community acceptance must be considered during remedy selection.

Due to the low number of applicable/feasible remedial alternatives, and the fact that the three remedial alternatives do not vary substantially, the detailed alternatives analysis (albeit more detailed) essentially mimics the screening analysis presented in Section 6.

7.2 Detailed Remedial Alternatives Analysis

This section provides more detail on each of the three remedial alternatives and documents the detailed remedial alternatives analysis:

- Alternative 1 - No Action: required by the NCP.
- Alternative 2 - Existing Institutional and Engineering Controls.
- Alternative 3 - Revised Institutional and/or Engineering Controls.

7.2.1 Alternative 1 – No Action

7.2.1.1 Remedial Alternative Description

Alternative 1 constitutes the No Action alternative for OU-1 soil. Under the No Action alternative, no additional remedial measures would be implemented at the site. As required by the NCP, this alternative is considered as a baseline to which other alternatives are compared.

The only activity that would occur under Alternative 1 involve the required five-year review of site conditions. Under this alternative, no monitoring/maintenance would be performed in relation to existing institutional and engineering controls. Therefore, measures to ensure and document remedy protectiveness and/or assess potential migration of COCs, would not be performed.

During each five year review, site conditions would be assessed; changes in potential risks, and potential imminent hazards posed by COCs would be identified and corrected, as needed. Site use would also be considered.

7.2.1.2 Detailed Analysis

Overall Protection of Human Health and the Environment - Alternative 1 would not fully protect human health and the environment. If existing institutional/engineering controls are not monitored and maintained, although the potential is limited, residential/non-residential exposures to hazardous substances could occur in isolated locations containing COCs at levels exceeding Controlling PRGs and/or are inconsistent with background. In addition, the RAOs would not be satisfied. Area residents, trespassers, and/or workers would not be fully protected from direct contact with contaminated soils in isolated locations in the absence of monitored and maintained engineering and institutional controls. Existing groundwater use restrictions would not be actively monitored.

Compliance with ARARs - Alternative 1 would not comply with chemical-specific ARARs as COC concentrations would continue to exceed Controlling PRGs. Action- and location-specific ARARs are not applicable as no response action would be taken.

Long-Term Effectiveness/Permanence – Potential threats to human health and the environment would potentially remain in association with subsurface soil in isolated areas. Alternative 1 would have limited long-term effectiveness and permanence because site COCs would remain without monitored and maintained engineering/institutional controls. Potential for ongoing unacceptable risks to human receptors (primarily construction/utility workers) would exist in relation to isolated locations. Although soil COCs might eventually decrease through natural attenuation, the process would take many years and would not be monitored. In summary, existing controls would not be monitored and maintained; therefore, evaluation of the adequacy and reliability of controls would not be applicable. Five-year reviews would be required to assess whether threats or risks are increasing or abating with time in light of future land use or changes in Site conditions.

Reduction of Toxicity, Mobility, and Volume through Treatment - Alternative 1 would not reduce the toxicity, mobility, or volume of contaminants through treatment because treatment would not occur. As previously noted, no potential Principal Threat Wastes or source areas (including the soil-to-groundwater pathway) remain. Some reduction of contaminant toxicity or volume might occur through attenuation processes. Alternative 1 would not satisfy the statutory preference for treatment to reduce risks posed by contaminated soils. Although COC mobility is not expected to be significant, Alternative 1 would not reduce the mobility of COCs.

Short-Term Effectiveness – Because no response action would occur, Alternative 1 would not pose short-term risks to the local community or workers, and there would be no additional impacts to the environment if Alternative 1 was implemented.

Implementability – Because no remedial actions or measures would occur, Alternative 1 would be readily implementable. The technical feasibility criteria (including constructability, operability, and reliability) are not applicable. Implementability of administrative measures is not applicable since no such measures would be taken; no permits would be required for implementation of Alternative 1. Coordination with other agencies would be required as part of the five-year review process. Regulatory personnel and environmental specialists are readily available to perform the five-year reviews effectively.

Cost - No capital costs are associated with the no-action alternative. Over a 30-year period, the net present worth cost for performing six five-year reviews is estimated at $26,555 (at an annual 7 percent discount rate) (Appendix C). The average cost for five-year reviews is estimated at $10,000 per event (or $2,000 per year), assuming no environmental sampling. The total cost for Alternative 1 – No Action is $26,555.

7.2.2 Alternative 2 – Existing Institutional and Engineering Controls

7.2.2.1 Remedial Alternative Description

Alternative 2 relies on *existing* deed/access restrictions, institutional controls, and engineering controls (building slabs, asphalt roadways and parking lots) to limit exposure to potential hazardous substances. This alternative would include regular monitoring, maintenance and reporting in relation to existing engineering and institutional controls, enforcement of existing deed restrictions and local ordinances to prevent future uses of the property that could result in additional exposures and use of groundwater from under the Site. Long-term monitoring would be conducted to assess controls and potential threats to human health and the environment would be conducted on an ongoing basis. Site conditions and risks would be reviewed every 5 years. Alternative 2 is depicted on Figure 2.

Deed restrictions are already in place that prevent construction and/or excavation activities in areas of potential contaminated soils (Appendix B); however, the existing institutional controls do not cover several isolated sample locations that contain COC concentrations above Controlling PRGs and/or are inconsistent with background. Records of the presence, nature, and extent of soil COCs would be maintained to ensure adequate measures are being implemented to minimize exposure. Institutional Controls prevent the installation of drinking water supply wells and groundwater use, thus minimizing the potential for future exposure to contaminated groundwater in perceptivity.

As part of Alternative 2, PADEP would issue a Hazardous Site Control Act (HSCA) Section 512 order to provide the Institutional Controls necessary to protect human receptors and to restrict any use of the property that would interfere with the remedy action selected for the site. The Order would remain in effect

even if the property was sold. Also, under the Commonwealth of Pennsylvania law, the Uniform Environmental Covenants Act (UECA) would be used to implement an approach to create, document, and assure enforceability of activity and use limitations at the site. The approved environmental covenant would be recorded in Montgomery County (in which the site is located) and may include post-remediation care obligations as appropriate.

An Institutional Control Implementation and Assurance Plan (ICIAP) would be developed during the remedial design (RD) to address Institutional Controls and Land Use Covenants. The ICIAP would identify parties (e.g., Federal, State, municipal authorities, or private entities) responsible for implementation, enforcement, monitoring, and long-term assurance, including costs (both short-term and long-term), and methods to fund the costs and responsibilities for each component. The ICIAP would include figures describing the coordinates of the restricted areas that do not allow for unrestricted land use. Also, the ICIAP would identify reporting requirements associated with the ICs and LUCs, and would include a periodic review of the status and effectiveness of these measures and whether the measures are still appropriate.

7.2.2.2 Detailed Analysis

Overall Protection of Human Health and the Environment - Alternative 2 would protect human health and the environment through monitoring and maintenance of institutional/engineering controls to ensure that residential/non-residential exposures to COCs is mitigated; however, existing institutional controls do not cover several isolated locations that contain COCs at concentrations above Controlling PRGs and/or are inconsistent with background. In general, the RAOs would be satisfied. Area residents, trespassers, and/or workers would be protected from direct contact with contaminated soils in isolated locations through application of monitored and maintained engineering and institutional controls. Existing groundwater use restrictions would be actively monitored.

Compliance with ARARs - Alternative 2 would not comply with chemical-specific ARARs as COC concentrations would continue to exceed Controlling PRGs. Action- or location-specific ARARs are not applicable as no response action would be taken. Alternative 2 would generally mitigate potential exposure to COCs, except at several isolated locations where COC concentrations are above Controlling PRGs.

Long-Term Effectiveness/Permanence – Because active remediation is not involved, COCs at levels above Controlling PRGS in isolated locations would remain long-term in subsurface soil. Potential threats to human health and the environment would be mitigated through active monitoring and maintenance of engineering controls. Alternative 2 would be effective over the long term because engineering and institutional controls covering isolated areas containing COCs at levels above Controlling PRGs would be regularly monitored and maintained. No unacceptable risks to human receptors would exist in relation to isolated locations containing COCs above Controlling PRGs. Soil COCs might eventually decrease through natural attenuation, the process would take many years. In summary, existing controls would be monitored

and maintained; therefore, evaluation of the adequacy and reliability of controls would be evaluated during five-year reviews to assess whether threats or risks are increasing or abating with time in light of future land use or changes in site conditions.

Reduction of Toxicity, Mobility, and Volume through Treatment - Alternative 2 would not reduce the toxicity, mobility, or volume of contaminants through treatment because treatment would not occur. As previously noted, no potential Principal Threat Wastes or source areas (including the soil-to-groundwater pathway) remain. Some reduction of contaminant toxicity or volume might occur through attenuation processes. Alternative 2 would not satisfy the statutory preference for treatment; however, previous Removal Actions (Golder, 2006) removed any potential Principal Threat Wastes and source areas. Although COC mobility is not expected to be significant, Alternative 2 would not reduce the mobility of COCs.

Short-Term Effectiveness – Because no response action would occur, Alternative 2 would not pose short-term risks to the local community or workers, and there would be no additional impacts to the environment if Alternative 2 was implemented.

Implementability – Because no remedial actions or measures would occur, Alternative 2 would be readily implementable. The technical feasibility criteria (including constructability, operability, and reliability) are not applicable. Administrative measures are implementable by virtue of the fact that institutional controls are already in place; no permits would be required for implementation of Alternative 2 (other than those that may have already been obtained to establish the existing engineering and institutional controls). Coordination with other agencies would be required as part of the five-year review process. Regulatory personnel and environmental specialists are readily available to perform the five-year reviews effectively.

Cost – No capital costs are associated with Alternative 2. Over a 30-year period, the net present worth cost of monitoring/maintenance/reporting regarding engineering and institutional controls and performing a total of six five-year reviews is estimated at $66,388 (at an annual 7 percent discount rate) (Appendix C). The average cost for five-year reviews is $10,000 per event (or $2,000 per year), assuming no environmental sampling; monitoring/maintenance/reporting of engineering and institutional controls estimated at $3,000 per year. The total cost for Alternative 2 – Existing Institutional and Engineering Controls is $66,388.

7.2.3 Alternative 3 – Revised Institutional and/or Engineering Controls

7.2.3.1 Remedial Alternative Description

Alternative 3 also relies on deed/access restrictions, institutional controls, and engineering controls (building slabs, asphalt roadways and parking lots) to limit exposure to potential hazardous substances; similar to Alternative 2. However, this alternative includes revising the scope of existing institutional controls (deed

restrictions) to cover only those isolated areas that contain COCs above Controlling PRGs and/or are inconsistent with background, based on the RI, RAs, and risk management evaluations. This alternative would include regular monitoring, maintenance and reporting in relation to *revised* engineering and institutional controls, enforcement of deed restrictions and local ordinances to prevent future uses of the property that could result in additional exposures and use of groundwater from under the Site. Long-term monitoring would be conducted to assess contaminant status and potential threats to human health and the environment. Site conditions and risks would be reviewed every five years. All other aspects of Alternative 3 are detailed under Alternative 2. However, in the case of Alternative 2, these aspects are existing; under Alternative 3, these aspects will need to be modified. The soil sample locations that would be included in the engineering/institutional control areas under Alternative 3 are depicted on Figure 3.

The revised deed restrictions presented under Alternative 3 were shared with and reviewed by various representatives of the current property owner, including their environmental consultant and legal counsel. Consistent with discussions and emails communications in January 2017, the revised deed restrictions presented in Alternative 3 are acceptable to the current property owner.

7.2.3.2 Detailed Analysis

Overall Protection of Human Health and the Environment - Alternative 3 would protect human health and the environment through monitoring and maintenance of institutional/engineering controls to ensure that residential/non-residential exposures to COCs in isolated locations is mitigated. In general, the RAOs would be satisfied. Area residents, trespassers, and/or workers would be protected from direct contact with contaminated soils in isolated locations through application of monitored and maintained engineering and institutional controls. Existing groundwater use restrictions would be actively monitored.

Compliance with ARARs - Alternative 3 would not comply with chemical-specific ARARs as COC concentrations would continue to exceed Controlling PRGs. Action- or location-specific ARARs are not applicable as no response action would be taken. Alternative 3 would effectively mitigate potential exposure to COCs at levels above Controlling PRGs.

Long-Term Effectiveness/Permanence – Because active remediation is not involved, COCs at levels above Controlling PRGS in isolated locations would remain long-term in subsurface soil. Potential threats to human health and the environment would be mitigated through active monitoring and maintenance of engineering controls. Alternative 3 would be effective over the long term because engineering and institutional controls covering isolated areas containing COCs at levels above Controlling PRGs would be regularly monitored and maintained. No unacceptable risks to human receptors would exist in relation to isolated locations containing COCs above Controlling PRGs. Soil COCs might eventually decrease through natural attenuation, the process would take many years. In summary, revised controls would be monitored and maintained; therefore, evaluation of the adequacy and reliability of controls would be evaluated during

five-year reviews to assess whether threats or risks are increasing or abating with time in light of future land use or changes in Site conditions.

Reduction of Toxicity, Mobility, and Volume through Treatment - Alternative 3 would not reduce the toxicity, mobility, or volume of contaminants through treatment because treatment would not occur. As previously noted, no potential Principal Threat Wastes or source areas (including the soil-to-groundwater pathway) remain. Some reduction of contaminant toxicity or volume might occur through attenuation processes. Alternative 3 would not satisfy the statutory preference for treatment; however, previous Removal Actions (Golder, 2006) removed any potential Principal Threat Wastes and source areas. Although COC mobility is not expected to be significant, Alternative 3 would not reduce the mobility of COCs.

Short-Term Effectiveness – Because no response action would occur, Alternative 3 would not pose short-term risks to the local community or workers, and there would be no additional impacts to the environment if Alternative 3 was implemented.

Implementability – Because no remedial actions or measures would occur, Alternative 3 would be readily implementable. The technical feasibility criteria (including constructability, operability, and reliability) are not applicable. Administrative measures are implementable. The 1190 Church Road property has been redeveloped for mixed commercial and residential use and is owned by a property management company. Limiting institutional controls to only those isolated areas where COC concentrations exceed Controlling PRGs and/or are inconsistent with background is feasible. Permits may be required for implementation of Alternative 3. Coordination with other agencies would be required as part of the five-year review process. Regulatory personnel and environmental specialists are readily available to perform the five-year reviews effectively.

Cost – Capital costs associated with Alternative 3 ($18,750) are related to professional services in support of establishing revised institutional controls and deed restriction negotiations with the current property owner. Over a 30-year period, the net present worth cost of capital and monitoring/maintenance/reporting costs regarding engineering and institutional controls and performing a total of six five-year reviews is estimated at $46,472 (at an annual 7 percent discount rate) (Appendix C). The average annual cost for five-year reviews is $10,000 per event (or $2,000 per year), assuming no environmental sampling; monitoring/maintenance/reporting of engineering and institutional controls estimated at $1,500 per year. The total cost for Alternative 3 - Revised Institutional and/or Engineering Controls is $65,222.

7.3 Comparative Remedial Alternatives Analysis

A comparative analysis of the three remedial alternatives for 1190 Church Road was conducted relative to the FS evaluation criteria to identify the advantages and disadvantages of each alternative relative to each other.

7.3.1 Overall Protection of Human Health and the Environment

Alternative 1 would not fully protect human health and the environment because institutional and engineering controls would not be monitored or maintained and no reporting would occur. Conversely, both Alternatives 2 and 3 would protect human health and the environment through monitoring and maintenance of institutional/engineering controls to ensure that residential/non-residential exposures to COCs is mitigated; however, Alternative 2 would not cover several of the isolated sample locations where COC concentrations are above Controlling PRGs and/or are inconsistent with background, whereas Alternative 3 would cover all areas containing COC concentrations above Controlling PRGs and/or are inconsistent with background.

Similarly, RAOs would generally be satisfied for Alternatives 2 and 3 but not Alternative 1. Under Alternatives 2 and 3 Area residents, trespassers, and/or workers would be protected from direct contact with contaminated soils through application of monitored and maintained engineering and institutional controls. Existing groundwater use restrictions would also be actively monitored under Alternatives 2 and 3 (but not Alternative 1).

7.3.2 Compliance with ARARs

None of the alternatives would not comply with chemical-specific ARARs, as COC concentrations would continue to exceed Controlling PRGs in subsurface soils. However, Alternatives 2 and 3 would effectively mitigate potential exposure to COCs at levels above Controlling PRGs. Action- or location-specific ARARs are not applicable to any of the remedial alternatives as no response action would be taken.

7.3.3 Long-Term Effectiveness/Permanence

Because active remediation is not involved, COCs at levels above Controlling PRGS in isolated locations would remain long-term in subsurface soil under all three alternatives. Potential threats to human health and the environment would be mitigated through active monitoring and maintenance of engineering controls under Alternatives 2 and 3 (but not Alternative 1).

Alternatives 2 and 3 would also be effective over the long term because engineering and institutional controls covering isolated areas containing COCs at levels above Controlling PRGs would be regularly monitored and maintained. No unacceptable risks to human receptors would exist in relation to isolated locations containing COCs above Controlling PRGs. Soil COCs might eventually decrease through natural attenuation, the process would take many years. In summary, controls would be monitored and maintained

under Alternatives 2 and 3 (but not Alternative 1). The adequacy and reliability of controls would be evaluated during five-year reviews to assess whether threats or risks are increasing or abating with time in light of future land use or changes in site conditions under all three alternatives.

7.3.4 Reduction of Toxicity, Mobility, and Volume through Treatment

None of the alternatives would actively reduce the toxicity, mobility, or volume of contaminants through treatment because treatment would not occur. As previously noted, no potential Principal Threat Wastes or source areas (including the soil-to-groundwater pathway) remain. Some reduction of contaminant toxicity or volume might occur through attenuation processes under all three alternatives. None of the alternatives would satisfy the statutory preference for treatment; however, previous Removal Actions (Golder, 2006) removed any potential Principal Threat Wastes and source areas. Although COC mobility is not expected to be significant, none of the alternatives would reduce the mobility of COCs.

7.3.5 Short-Term Effectiveness

Because no response action would occur, none of the alternatives would pose short-term risks to the local community or workers, and there would be no additional impacts to the environment associated with any of the alternatives.

7.3.6 Implementability

Because no remedial actions or measures would occur, any of the remedial alternatives would be readily implementable. The technical feasibility criteria (including constructability, operability, and reliability) are not applicable. Administrative measures are implementable under Alternatives 2 and 3. Permits may be required for implementation of Alternative 3. Coordination with other agencies would be required as part of the five-year review process under any of the alternatives. Regulatory personnel and environmental specialists are readily available to perform the five-year reviews effectively.

7.3.7 Cost

Capital costs associated with Alternative 3 are related to professional services in support of establishing revised institutional controls limited to the isolated locations containing COCs above Controlling PRGs. The capital costs for Alternative 3 are estimated at $18,750. No capital costs ($0) are associated with Alternatives 1 and 2, as no submittals will be required until the five-year review.

Over a 30-year period, the net present worth cost of monitoring/maintenance/reporting regarding engineering and institutional controls (Alternatives 2 and 3) and performing a total of six five-year reviews (Alternatives 1, 2 and 3) is estimated at $26,555, $66,388, and $46,472, respectively (at an annual 7 percent discount rate) (Appendix C). The average annual cost for five-year reviews is $10,000 per event (or $2,000 per year), assuming no environmental sampling; monitoring/maintenance of engineering controls are

estimated to range between $1,500 per year (Alternative 3) and $3,000 per year (Alternative 2). The following table summarizes the estimated costs for the three alternatives.

Alternatives	Alternative 1 – No Action	Alternative 2 – Existing ICs	Alternative 3 – Revised ICs
Capital Costs	*$0*	*$0*	*$18,750*
O&M Costs	*$26,555*	*$66,388*	*$46,472*
5-yr Reviews	$2k per year/$10k total	$2k per year/$10k total	$2k per year/$10k total
Monitoring/Maintenance of ICs	$0	$3k per year	$1.5K per year
Discount Rate	7%	7%	7%
Total Costs	***$26,555***	***$66,388***	***$65,222***

8.0 CONCLUSIONS

Pursuant to the AOC (Document No. 111-2000-0018-DC), the Respondents completed all remaining FS components, including all FS TM#2 elements; the screening and detailed remedial alternatives analysis; and preparation of the FFS Final Report for OU-1 at the NP7 Superfund Site in Montgomery County, PA.

Based on the FS TM#2 results, no further revaluation of GRAs or remedial alternatives was warranted for OU-1 soil at any of the three Respondent's properties.

Notwithstanding these results, a limited number of soil sampling locations at the 1190 Church Road property were determined to contain at least one COC at concentrations above Controlling PRGs and/or not consistent with background. All of the soil sampling locations that contain COCs exceeding one or more Controlling PRGs are situated at depth greater than 2 feet bgs, and are located beneath existing engineering controls and/or within the bounds of existing engineering controls. As a result, the development of RAOs (other than those in support of future property stewardship) is not warranted for protection of human health, ecological, and soil-to-groundwater pathways with respect to the 1190 Church Road property.

To comply with recent EPA comments outlined previously in this report, screening and detailed remedial alternatives analysis was performed for the No Action alternative (as required by the NCP) and alternatives consisting of engineering/institutional controls only for the 1190 Church Road Property. Although this step is not strictly required per the risk management evaluations, to complete the administrative record for the NP7 Site, identification, screening, and detailed evaluation of a limited number of remedial alternatives was performed. Specially, the following alternatives were evaluated:

- Alternative #1 – No Action.
- Alternative #2 – Existing Institutional and Engineering Controls.
- Alternative #3 – Revised Institutional and Engineering Controls.

Based on the individual and comparative analysis of the three remedial alternatives for the 1190 Church Road Property, the following conclusions were reached:

- Revised RAOs – Alternative 1 would not achieve revised RAOs; RAOs would be generally satisfied under Alternatives 2 and 3.
- Protection of Human Health and Environment – Alternative 1 would not protect human health and environment; Alternatives 2 and 3 would be generally protective; however, Alternative 2 would not cover several isolated locations where COC concentrations exceed Controlling PRGs and/or are inconsistent with background.
- Compliance with ARARs – none of the alternatives would comply with chemical-specific ARARs.

- Long-Term Effectiveness/Performance – Alternative 1 would not be permanent; Alternatives 2 and 3 would be permanent and therefore effective over the long term.
- Reduction of Toxicity, Mobility, and Volume through Treatment – none of the alternatives would comply because treatment would not occur.
- Short-Term Effectiveness – Because no responsive actions would occur, none of the alternatives would pose short-term risks.
- Implementability – Because no remedial actions would occur, all three alternatives would be readily implementable.
- Cost – Alternative 1 is the lowest cost alternative. Alternative 3 provides greater protection of human health and the environment for a similar overall cost relative to Alternative 2.

The revised deed restrictions presented under Alternative 3 were shared with and reviewed by various representatives of the current property owner, including their environmental consultant and legal counsel. Consistent with discussions and emails communications in January 2017, the revised deed restrictions presented Alternative 3 are acceptable to the current property owner.

As indicated in their June 22, 2017 letter, the USEPA approved the draft FFS Report (February 2017), assuming that the responses in Golder's May 3, 2017 letter were incorporated into the text of the final FS Report. As indicated in Section 1, this FFS Final Report incorporates Golder's May 3, 2017 letter responding to USEPA's April 6, 2017 comments. Accordingly, this FFS Final Report represents the fully approved text. The Respondent for 1190 Church Road also agrees to address minor USEPA comments outlined in an enclosure to the USEPA's June 22, 2017 FS approval letter (Appendix D) during the planned Remedial Design process.

9.0 REFERENCES

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USEPA, 2014, ProUCL, Version 5.0, http://www.epa.gov/esd/tsc/software.htm.

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TABLES

Table 1
Potential Chemical-Specific ARARs and TBCs
North Penn Area 7 Superfund Site - Operable Unit No. 1 (Respondent-Lead Soil)
Montgomery County, Pennsylvania

Regulatory Authority	Requirement & Citation	Status	Description of ARAR/TBC
FEDERAL/USEPA			
Toxic Substances Control Act (TSCA)	40 CFR Part 761, Subparts A, C, D, F, K, and N 40 CFR Part 763 Subpart G	ARAR	Federal regulations that apply to the handling, management and disposal of PCB and asbestos waste materials.
Guidance on Remedial Actions for Superfund Sites with PCB Contamination	EPA/540/G-90/007z	TBC	Guidance for developing RAOs for remediation and disposal of PCB wastes.
Soil Screening Guidance	EPA/540/R-96/018	TBC	Provides methodology for calculating risk-based, site-specific screening levels.
Risk-Based Regional Screening Levels (RSLs)	EPA Risk Based-Screening Levels (http://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables-november-2015)	TBC	Chemical screening guidelines for use during risk assessment.
Resource Conservation and Recovery Act (RCRA)	40 CFR Parts 261-265, 270 and 271	ARAR	Federal regulations governing solid and hazardous waste; also lays out process for identifying characteristically hazardous waste.
RCRA TCLP and Land Ban Requirements for Landfilling	40 CFR Part 261	ARAR	Requirements and restrictions on hazardous waste disposal in landfills.
Clean Air Act	42 USC 7401 Section 112	ARAR	Limits on hazardous pollutant emissions to atmosphere.
National Emission Standards for Hazardous Air Pollutants (NESHAP)	40 CFR Part 61	ARAR	Limits on hazardous pollutant emissions to atmosphere.
STATE/PENNSYLVANIA			
Act 2 Land Recycling & Environmental Remediation Standards Act (Act 2)	Title 25 PA Code 305	ARAR	Statewide health standards for soil.
Ambient Air Quality Standards	Title 25 PA Code Chapter 131	ARAR	Air quality standards for the protection of health and the preservation of ambient air quality.
Fugitive Particulate and Odor Requirements	Title 25 PA Code Chapter 123	ARAR	Particulate matter and odor emission standards.
Variances and Alternate Standards	Title 25 PA Code Chapter 141	ARAR	Allowable variances from air standards for individual sources.
Interim Operating Guidance for Air Toxic Substances	N/A	TBC	Guidance for sources of air toxics.
Hazardous Waste Management Regulations - Land Disposal Restrictions (LDRs)	Title 25 PA Code Chapter 268a	ARAR	Requirements and restrictions on hazardous waste disposal in landfills.
Identification and Listing of Hazardous Waste	Title 25 PA Code Chapter 261a.1 - 7	ARAR	Identifies solid and hazardous wastes.
Hazardous Substances List	Title 25 PA Code Chapter 323	ARAR	Lists substances considered hazardous in the Commonwealth of Pennsylvania.

Table 2
Potential Action-Specific ARARs and TBCs
North Penn Area 7 Superfund Site - Operable Unit No. 1 (Respondent-Lead Soil)
Montgomery County, Pennsylvania

Regulatory Authority	Requirement & Citation	Status	Description of ARAR/TBC
FEDERAL/USEPA			
RCRA Standards for Owners and Operators of Hazardous Waste TSDFs	40 CFR Part 264.310(a)	ARAR	Regulates final closure and post-closure care of hazardous waste in landfills.
RCRA Groundwater Monitoring and Protection Standards	40 CFR Part 264, Subpart F	ARAR	Limits for maximum contaminant levels allowed in sensitive groundwater source areas near hazardous waste site.
Clean Air Act	42 USC 7401, Section 112	ARAR	Limits on hazardous pollutant emissions to atmosphere.
National Ambient Air Quality Standards (NAAQS)	40 CFR Part 50	ARAR	Primary and secondary NAAQS in Section 109 Clean Air Act.
National Emission Standards for Hazardous Air Pollutants (NESHAP)	40 CFR Part 61	ARAR	Limits on hazardous pollutant emissions to atmosphere.
RCRA Solid Waste Regulations	40 CFR Part 258	ARAR	Minimum technical standards for solid waste disposal facilities.
RCRA General and Hazardous Waste Management Regulations	40 CFR Part 260	ARAR	Terms and general standards for solid waste disposal facilities.
Wetlands Permits	CWA Section 404	ARAR	Requirements for the preservation if wetlands and floodplain areas.
STATE/PENNSYLVANIA			
Residual Waste Management	Title 25 PA Code Chapters 287 - 289	ARAR	Requirements for non-hazardous waste management.
Hazardous Waste Regulations	Title 25 PA Code Chapters 260a - 266a, 266b, and 268a-270a	ARAR	Requirements for hazardous waste management.
Municipal Solid Waste Landfills	Title 25 PA Code Chapter 273	ARAR	Requirements for municipal waste management.
Hazardous Waste Landfills	Title 25 PA Code Chapter 264a, parts G, L and N	ARAR	Requirements for hazardous waste disposal facilities.
Land Disposal Restrictions	Title 25 PA Code Chapter 268a	ARAR	Standards for land disposal of RCRA hazardous waste including requirement to treat waste to diminish toxicity and/or minimize contaminant migration.
Hazardous Materials Transport	Title 67 PA Code Chapter 403	ARAR	Requirements for transporting hazardous waste within Pennsylvania.
Standards for Air Contaminants	Title 25 PA Code Chapter 123	ARAR	Requirements for emitting certain air pollutants.
Stormwater Management Act of 1978	PL 864	ARAR	Requirements for managing stormwater onsite.
Clean Streams Law	1937 Act 394	ARAR	Requirements for erosion and sediment control
Air Resources - Air Pollutant Episodes	Title 25 PA Code Chapter 137	ARAR	Procedures for handling special emission episodes and emergencies.
Land Recycling Technical Manual	Title 25 PA Code Chapter 250	TBC	Recommendations and guidance for voluntary state cleanup activities and land reuse.
Guidance for Superfund Site Cleanup and State Act 2 Sites, PADEP	N/A	TBC	Requirements for coordination between State and Superfund cleanup actions on site.
Hazardous Sites Cleanup Act	35 PS Section 6020.101	ARAR	Establishes the Commonwealth's authority to be involved in the cleanup of Superfund site in Pennsylvania.

Table 3
Potential Location-Specific ARARs and TBCs
North Penn Area 7 Superfund Site - Operable Unit No. 1 (Respondent-Lead Soil)
Montgomery County, Pennsylvania

Regulatory Authority	Requirement & Citation	Status	Description of ARAR/TBC
FEDERAL/USEPA			
Water Pollution Control Act	33 USC 1251	ARAR	Requirements for discharges to surface water.
Fish and Wildlife Coordination Act	16 USC 661	ARAR	This regulation states that wildlife conservation be given equal consideration and be coordinated with other aspects of water resource development programs. Potentially applicable if surface water is diverted or disturbed during remedial action, or if wildlife is disrupted during remedial action.
Fish and Wildlife Improvement Act of 1978	16 USC 742	ARAR	Requirements to protect fish and wildlife against impacts that may affect their protected habitats. May be potentially applicable for discharge of treated water.
Fish and Wildlife Conservation Act of 1980	16 USC 2901	ARAR	Requirements to protect fish and wildlife against impacts that may affect their protected habitats. May be potentially applicable for discharge of treated water.
Endangered Species Act of 1978	16 USC 1531/ 50 CFR Part 200	ARAR	Requirements if endangered or threatened species or habits are present where the remediation is to occur.
National Historic Preservation Act	16 USC 470/ 36 CFR 800	ARAR	Requirements if prehistoric, historic, or archeological artifacts are encountered during site remediation.
Wetlands Requirements	40 CFR Part 257	ARAR	A requirement that no remedial activity adversely affect a wetland if a practicable alternative is available. If no other practicable alternative exists, impacts must be minimized or mitigated.
Wetlands Requirements	Executive Order 11990 40 CFR Part 6	ARAR	A requirement that no remedial activity adversely affect a wetland if a practicable alternative is available. If no other practicable alternative exists, impacts must be minimized or mitigated.
Floodplain Requirements	Executive Order 11988 40 CFR Part 6	ARAR	Requirements to reduce the risk of flood loss, minimize impact of floods, and restore and preserve the natural and beneficial value of floodplains.
STATE/PENNSYLVANIA			
Flood Plain Management Act Regulations	Title 25 PA Code Chapter 106	ARAR	Standards relating to construction, earthmoving, filling and excavation within 100-year floodplain, wetlands and regulated water.
Historic Preservation Act	16 USC 470	ARAR	Requirements for preservation of any prehistoric, historic, or archeological artifacts encountered during site remediation.

Table 4
Candidate Preliminary Remediation Goals (PRGs)
1190 Church Road Property
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

Chemical Of Concern (COC)	CASRN	COC Type	Direct Contact								HH-PRG Clean Fill Soil[3]	Background[4]	
			EPA Regional Screening Levels (RSL[1])				PADEP MSC[2]						
			Residential Soil		Industrial Soil		Residential		Non-Residential Surface Soil				
							0-15 Feet		0-2 Feet			Mean	95% UTL
Inorganics/Metals (mg/kg)													
Arsenic	7440-38-2	HH	0.68	c	3.0	c	12	G	61	G	12	6.5	12
Manganese	7439-96-5	HH	180	n	2,600	n	10,000	G	150,000	G	31,000	628	1,619
Mercury	7439-97-6	HH	1.1	n	4.6	n	35	G	510	G	10	0.065	0.29

Notes:

1. USEPA, 2016. USEPA Regional Screening Level Tables. Dated May, 2016. Assumes a TR of 1.0E-06 and a THQ of 0.1

2. PADEP, 2016. Statewide Health Standards - Medium Specific Concentrations. Located here: http://www.dep.pa.gov/Business/Land/LandRecycling/Standards-Guidance-Procedures/Pages/Statewide-Health-Standards.aspx#.V1BwCnjD-t8

3. PADEP, 2014. Mangagement of Fill. Located here: https://www.portal.state.pa.us/portal/server.pt/directory/management_of_fill/142245?DirMode=1

4. Golder, 2015. North Penn 7 Background Evaluation.

Prepared By: IR (6/20/2016)
Checked By: JMG (6/23/2017)

c = Carinogenic SL
n = Noncarcinogenic SL
G = Ingestion
HH = human health

Table 5
Step-Wise Process to Determine Controlling PRGs and Results
1190 Church Road Property
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

HHRA - Direct Contact: Area B

Analytes	Initial FS COCs	Candidate PRGs	Carc Risk < 10-6/HQ < 1	Consistent with Background	> 2 ft bgs	Engineering Controls	Institutional Controls	Otherwise Excluded	Remaining FS COCs	PRGs vs. MSCs	Controlling PRGs	Final FS COCs	Notes
Arsenic	Yes	see Table 4c	Yes - CTE	No	Yes (AB13-9.5. AB44-06_G, AB39-09)	Yes (AB13-9.5. AB44-06_G)	Yes (AB13-9.5. ABB44-06_G)	--	Yes	PRG	Background	Yes	b, c, d, e

HHRA - Direct Contact: Area C

Analytes	Initial FS COCs	Candidate PRGs	Carc Risk < 10-6/HQ < 1	Consistent with Background	> 2 ft bgs	Engineering Controls	Institutional Controls	Otherwise Excluded	Remaining FS COCs	PRGs vs. MSCs	Controlling PRGs	Final FS COCs	Notes
Arsenic	Yes	see Table 4c	Yes - CTE	Yes	--	--	--	--	--	--	--	--	a, b
Mercury	Yes	see Table 4c	Yes - CTE	No	Yes (AB125-5.5_G, AB55-5.5_G, AB59-45_G)	Yes (AB125-5.5_G, AB55-5.5_G, AB59-45_G)	Yes (AB55-5.5_G)	--	Yes	PRG	Site-Specific HHPRG	Yes	b, c, d, e

HHRA - Direct Contact: Area B/C

Analytes	Initial FS COCs	Candidate PRGs	Carc Risk < 10-6/HQ < 1	Consistent with Background	> 2 ft bgs	Engineering Controls	Institutional Controls	Otherwise Excluded	Remaining FS COCs	PRGs vs. MSCs	Controlling PRGs	Final FS COCs	Notes
Arsenic	Yes	see Table 4c	Yes - CTE	No	Yes (AB13-9.5. AB44-06_G, AB39-09)	Yes (AB13-9.5. AB44-06_G)	Yes (AB13-9.5. AB44-06_G)	--	Yes	PRG	Background	Yes	b, c, d, e
Manganese	Yes	see Table 4c	Yes - CTE	No	Yes (AB72-09_G, AB74-10_G, AB77-9.5_G, AB78-10_G)	Yes (AB72-09_G, AB74-10_G, AB77-9.5_G, AB78-10_G)	No	--	Yes	PRG	Site-Specific HHPRG	Yes	b, c, d

SLERA - Plant/Inv

Analytes	Initial FS COCs	Candidate PRGs	Mean < SSL	Consistent with Background	> 2 ft bgs	Engineering Controls	Institutional Controls	Otherwise Excluded	Remaining FS COCs	PRGs vs. MSCs	Controlling PRGs	Final FS COCs	Notes
Arsenic	Yes	see Table 4	Yes	No	Yes (AB13-95_G, AB44-06_G, AB39-09)	Yes (AB13-95_G, AB44-06_G, AB39-09)	Yes (AB13-95_G, AB44-06_G)	--	Yes	PRG	Background	Yes	c, d, e, f
Manganese	Yes	see Table 4	No	No	Yes (AB12-14, AB20-19.5, AB72-09_G, AB74-10_G, AB77-9.5_G, AB78-10_G)	Yes (AB12-14, AB20-19.5, AB72-09_G, AB74-10_G, AB77-9.5_G, AB78-10_G)	Yes (AB12-14, AB20-19.5)	--	Yes	PRG	Background	Yes	c, d, e
Mercury	Yes	see Table 4	No	No	Yes (AB55-5.5_G, AB59-4.5, AB125-5.5_G)	Yes (AB55-5.5_G, AB80-01_G, AB49-05, AB59-4.5, AB85-01_G, AB125-5.5_G)	Yes (AB55-5.5_G)	--	Yes	PRG	Background	Yes	c, d, e

Notes
a- consistent with background
b - acceptable risk when considering CTE
c -concentrations in excess of background levels are below 2 ft bgs
d - concentrations in excess of background are covered by engineering contro
e - concentrations in excess of background are covered by institutional control
f - mean concentration results in acceptable risk levels
g- Site COC not detected at the property

PRG - Preliminary Remediation Goal
COC - Chemical of Concern
FS - Feasibility Study
HQ - Hazard Quotient
CTE - Central Tendency Exposure

Prepared By: IR (06/20/2016)
Checked By: JMG (6/23/2017)

Table 6
Summary of Human Health PRGs
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

CAS	Chemical of Concern	Selected PRG (mg/kg)
1190 Church Road		
7429-90-5	Aluminum	74,939
7440-38-2	Arsenic	6.8
50-32-8	Benzo(a)pyrene	0.16
53-70-3	Dibenzo(a,h)anthracene	0.16
7439-96-5	Manganese	1,900
7487-94-7	Mercury	23
7440-28-0	Thallium	0.63
7440-47-3	Total Chromium	60
7440-62-2	Vanadium	390

Prepared By: IR (6/20/2016)
Checked By: JMG (6/23/2017)

Table 6a
Summary of Human Health PRGs
1190 Church Road Property - Area A
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

CAS	Chemical of Concern[1]	Carcinogenic Preliminary Remediation Goals (mg/kg)			Non-Carcinogenic Preliminary Remediation Goals (mg/kg)				Selected PRG (mg/kg)[3]	Notes[4]	Cancer Risk Associated with the Selected PRG	Hazard Quotient Associated with the Selected PRG
		PRG (Target Risk of 1.0E-06)[4]	PRG (Target Risk of 1.0E-05)	PRG (Target Risk of 1.0E-04)	PRG (THQ of 0.1)[4]	Site-Specific THQ[2]	Target Organ[5]	Site-Specific Non-Cancer PRG				
7440-28-0	Thallium	--	--	--	0.078	1.0	Skin	0.78	**0.78**	THQ = 1.0	--	1.0

Cumulative Cancer Risk	Hazard Index
--	**1.0**

Target Organ Specific HI	
Skin	1.0

Notes:

(1) For those COCs with different target organ effects between the ingestion/dermal and inhalation pathways, the COC was listed twice so that each pathway could be evaluated separately for non-carcinogenic. Carcinogens were only evaluated once.

(2) Site-Specific Target Hazard Quotients were selected for only those COCs that contribute to a target organ-specific HI of greater than 1.0

(3) PRGs were selected using the following criterion - The lower values of the non-carcinogenic PRG (COC-specific THQ) and the carcinogenic PRG (Target Risk of 1.0E-05) L, such that the cumulative risk from COCs at the PRG does not exceed a risk of 1.0E-04 or target organ specific HQ of 1.0.

(4) Initial PRGs (TR = 1.0E-06 or THQ of 0.1) were based on the May 2016 USEPA Regional Screening Levels Tables

(5) Target organs taken from the USEPA Regional Screening Level Calculator - Access May 26, 2016

(6) HI = Hazard Index

(7) NA = Not applicable

(8) PRG = Preliminary Remediation Goal

(9) THQ = Target hazard quotient

Prepared By: IR (6/20/2016)
Checked By: JMG (6/23/2017)

Table 6b
Summary of Human Health PRGs
1190 Church Road Property - Area B
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

CAS	Chemical of Concern[1]	Carcinogenic Preliminary Remediation Goals (mg/kg)			Non-Carcinogenic Preliminary Remediation Goals (mg/kg)				Selected PRG (mg/kg)[3]	Notes[4]	Cancer Risk Associated with the Selected PRG	Hazard Quotient Associated with the Selected PRG
		PRG (Target Risk of 1.0E-06)	PRG (Target Risk of 1.0E-05)	PRG (Target Risk of 1.0E-04)	PRG (THQ of 0.1)	Site-Specific THQ[2]	Target Organ	Site-Specific Non-Cancer PRG				
7440-38-2	Arsenic	0.68	6.8	68	3.5	NA	Blood/Skin	NA	**6.8**	TR = 1.E-05	1.0E-05	0.19
50-32-8	Benzo(a)pyrene	0.016	0.16	1.6	--	--	--	--	**0.16**	TR = 1.E-05	1.0E-05	--
16065-83-1	Trivalent Chromium	--	--	--	12,000	NA	NOAEL	NA	**57**	Based on 95% of the total chromium PRG	--	0.00048
18540-29-9	exavalent Chromium (Ingestion/Derm	0.30	3.0	30	23	NA	NOAEL	NA	**3.0**	Based on 5% of the total chromium PRG	1.0E-05	0.013
18540-29-9	Hexavalent Chromium (Inhalation)	NA	NA	NA	14,000	NA	Lungs	NA	**3.0**	Based on 5% of the total chromium PRG	--	0.000021
7440-47-3	Total Chromium[6]	6.0	60	600	444	1.0	NOAEL	4,438	**60**	= 1.E-05 (Assuming 5% Hexavalent Chromiu	1.0E-05	0.014
53-70-3	Dibenzo(a,h)anthracene	0.016	0.16	1.6	--	--	--	--	**0.16**	TR = 1.E-05	1.0E-05	--
7440-28-0	Thallium	--	--	--	0.078	0.81	Skin	0.63	**0.63**	THQ = 1.0	--	0.81
7440-62-2	Vanadium (Ingestion/Dermal)	--	--	--	39	1.0	Hair	390	**390**	THQ = 1.0	--	1.0
7440-62-2	Vanadium (Inhalation)	--	--	--	14,000	1.0	Lungs/Nasal	140,000	**390**	THQ = 1.0	--	0.0028

Cumulative Cancer Risk	Hazard Index
5.0E-05	**2.0**

Target Organ Specific HI	
Blood	0.19
Hair	1.0
Lungs	0.0028
Nasal	0.0028
NOAEL	0.014
Skin	1.0

Notes:
(1) For those COCs with different target organ effects between the ingestion/dermal and inhalation pathways, the COC was listed twice so that each pathway could be evaluated separately for non-carcinogenic. Carcinogens were only evaluated once.
(2) Site-Specific Target Hazard Quotients were selected for only those COCs that contribute to a target organ-specific HI of greater than 1.0
(3) PRGs were selected using the following criterion - The lower values of the non-carcinogenic PRG (COC-specific THQ) and the carcinogenic PRG (Target Risk of 1.0E-05) L, such that the cumulative risk from COCs at the PRG does not exceed a risk of 1.0E-04 or target organ specific HQ of 1.0.
(4) Initial PRGs (TR = 1.0E-06 or THQ of 0.1) were based on the May 2016 USEPA Regional Screening Levels Tables
(5) Target organs taken from the USEPA Regional Screening Level Calculator - Access May 26, 2016
(6) It is assumed that 5% of total chromium is in the hexavalent form, based on the results of the Supplemental Investigation. The PRGs for the sole trivalent and hexavalent forms of chromium or for comparison purposes only
(7) HI = Hazard Index
(8) NA = Not applicable
(9) NOAEL = No observable adverse effect level
(10) PRG = Preliminary Remediation Goal
(11) THQ = Target hazard quotient

Prepared By: IR (6/20/2016)
Checked By: JMG (6/23/2017)

Table 6c
Summary of Human Health PRGs
1190 Church Road Property - Area C
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

CAS	Chemical of Concern[1]	Carcinogenic Preliminary Remediation Goals (mg/kg)			Non-Carcinogenic Preliminary Remediation Goals (mg/kg)				Selected PRG (mg/kg)[3]	Notes[4]	Cancer Risk Associated with the Selected PRG	Hazard Quotient Associated with the Selected PRG
		PRG (Target Risk of 1.0E-06)	PRG (Target Risk of 1.0E-05)	PRG (Target Risk of 1.0E-04)	PRG (THQ of 0.1)	Site-Specific THQ[2]	Target Organ	Site-Specific Non-Cancer PRG				
7440-38-2	Arsenic	0.68	6.8	68	3.5	NA	Blood/Skin	NA	**6.8**	TR = 1.E-05	1.0E-05	0.19
50-32-8	Benzo(a)pyrene	0.016	0.16	1.6	--	--	--	--	**0.16**	TR = 1.E-05	1.0E-05	--
16065-83-1	Trivalent Chromium	--	--	--	12,000	NA	NOAEL	NA	**57**	Based on 95% of the total chromium PRG	--	0.00048
18540-29-9	exavalent Chromium (Ingestion/Derm	0.30	3.0	30	23	NA	NOAEL	NA	**3.0**	Based on 5% of the total chromium PRG	1.0E-05	0.013
18540-29-9	Hexavalent Chromium (Inhalation)	NA	NA	NA	14,000	NA	Lungs	NA	**3.0**	Based on 5% of the total chromium PRG	--	0.000021
7440-47-3	Total Chromium[6]	6.0	60	600	444	1.0	NOAEL	4,438	**60**	= 1.E-05 (Assuming 5% Hexavalent Chromiu	1.0E-05	0.014
53-70-3	Dibenzo(a,h)anthracene	0.016	0.16	1.6	--	--	--	--	**0.16**	TR = 1.E-05	1.0E-05	--
7487-94-7	Mercury (Ingestion/Dermal)[7]	--	--	--	2.3	1.0	Immunological	23	**23**	THQ = 1.0	--	1.0
7487-94-7	Mercury (Inhalation)[7]	--	--	--	43,000	1.0	Neurological	430,000	**23**	THQ = 1.0	--	0.000053
7440-28-0	Thallium	--	--	--	0.078	0.81	Skin	0.63	**0.63**	THQ = 1.0	--	0.81
7440-62-2	Vanadium (Ingestion/Dermal)	--	--	--	39	1.0	Hair	390	**390**	THQ = 1.0	--	1.0
7440-62-2	Vanadium (Inhalation)	--	--	--	14,000	1.0	Lungs/Nasal	139,997	**390**	THQ = 1.0	--	0.0028

Cumulative Cancer Risk	Hazard Index
5.0E-05	**3.0**

Target Organ Specific HI	
Blood	0.19
Hair	1.0
Immunological	1.0
Lungs	0.0028
Nasal	0.0028
Neurological	0.000053
NOAEL	0.014
Skin	1.0

Notes:

(1) For those COCs with different target organ effects between the ingestion/dermal and inhalation pathways, the COC was listed twice so that each pathway could be evaluated separately for non-carcinogenic. Carcinogens were only evaluated once.

(2) Site-Specific Target Hazard Quotients were selected for only those COCs that contribute to a target organ-specific HI of greater than 1.0

(3) PRGs were selected using the following criterion - The lower values of the non-carcinogenic PRG (COC-specific THQ) and the carcinogenic PRG (Target Risk of 1.0E-05) L, such that the cumulative risk from COCs at the PRG does not exceed a risk of 1.0E-04 or target organ specific HQ of 1.0.

(4) Initial PRGs (TR = 1.0E-06 or THQ of 0.1) were based on the May 2016 USEPA Regional Screening Levels Tables

(5) Target organs taken from the USEPA Regional Screening Level Calculator - Access May 26, 2016

(6) It is assumed that 5% of total chromium is in the hexavalent form, based on the results of the Supplemental Investigation. The PRGs for the sole trivalent and hexavalent forms of chromium or for comparison purposes only

(7) Mercury is assumed to be in the form of mercuric chloride

(8) HI = Hazard Index

(9) NA = Not applicable

(10) NOAEL = No observable adverse effect level

(11) PRG = Preliminary Remediation Goal

(12) THQ = Target hazard quotient

Prepared By: IR (6/20/2016)
Checked By: JMG (6/23/2017)

Table 6d
Summary of Human Health PRGs
1190 Church Road Property - Area B/C
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

CAS	Chemical of Concern[1]	Carcinogenic Preliminary Remediation Goals (mg/kg)			Non-Carcinogenic Preliminary Remediation Goals (mg/kg)				Selected PRG (mg/kg)[3]	Notes[4]	Cancer Risk Associated with the Selected PRG	Hazard Quotient Associated with the Selected PRG
		PRG (Target Risk of 1.0E-06)	PRG (Target Risk of 1.0E-05)	PRG (Target Risk of 1.0E-04)	PRG (THQ of 0.1)	Site-Specific THQ[2]	Target Organ	Site-Specific Non-Cancer PRG				
7429-90-5	Aluminum	--	--	--	7,700	0.97	Neurological	74,939	**74,939**	Site-Specific THQ	--	0.97
7440-38-2	Arsenic	0.68	6.8	68	3.5	NA	Blood/Skin	NA	**6.8**	TR = 1.E-05	1.0E-05	0.19
50-32-8	Benzo(a)pyrene	0.016	0.16	1.6	--	--	--	--	**0.16**	TR = 1.E-05	1.0E-05	--
16065-83-1	Trivalent Chromium	--	--	--	12,000	NA	NOAEL	NA	**57**	Based on 95% of the total chromium PRG	--	0.00048
18540-29-9	exavalent Chromium (Ingestion/Derm	0.30	3.0	30	23	NA	NOAEL	NA	**3.0**	Based on 5% of the total chromium PRG	1.0E-05	0.013
18540-29-9	Hexavalent Chromium (Inhalation)	--	--	--	14,000	NA	Lungs	NA	**3.0**	Based on 5% of the total chromium PRG	--	0.000021
7440-47-3	Total Chromium	6.0	60	600	444	1.0	NOAEL	4,438	**60**	= 1.E-05 (Assuming 5% Hexavalent Chromiu	1.0E-05	0.014
53-70-3	Dibenzo(a,h)anthracene	0.016	0.16	1.6	--	--	--	--	**0.16**	TR = 1.E-05	1.0E-05	--
7439-96-5	Manganese (Ingestion/Dermal)	--	--	--	190	1.0	Thyroid	1,900	**1,900**	THQ = 1.0	--	1.0
7439-96-5	Manganese (Inhalation)	--	--	--	7,100	NA	Neurological	NA	**1,900**	THQ = 1.0	--	0.027
7440-28-0	Thallium	--	--	--	0.078	0.81	Skin	0.63	**0.63**	Site-Specific THQ	--	0.81
7440-62-2	Vanadium (Ingestion/Dermal)	--	--	--	39	1.0	Hair	390	**390**	THQ = 1.0	--	1.0
7440-62-2	Vanadium (Inhalation)	--	--	--	14,000	1.0	Lungs/Nasal	139,997	**390**	THQ = 1.0	--	0.0028

Cumulative Cancer Risk	Hazard Index
5.0E-05	**4.0**

Target Organ Specific HI	
Blood	0.19
Hair	1.0
Lungs	0.0028
Nasal	0.0028
Neurological	1.0
NOAEL	0.014
Skin	1.0
Thyroid	1.00

Notes:

(1) For those COCs with different target organ effects between the ingestion/dermal and inhalation pathways, the COC was listed twice so that each pathway could be evaluated separately for non-carcinogenic. Carcinogens were only evaluated once.

(2) Site-Specific Target Hazard Quotients were selected for only those COCs that contribute to a target organ-specific HI of greater than 1.0

(3) PRGs were selected using the following criterion - The lower values of the non-carcinogenic PRG (COC-specific THQ) and the carcinogenic PRG (Target Risk of 1.0E-05) L, such that the cumulative risk from COCs at the PRG does not exceed a risk of 1.0E-04 or target organ specific HQ of 1.0.

(4) Initial PRGs (TR = 1.0E-06 or THQ of 0.1) were based on the May 2016 USEPA Regional Screening Levels Tables

(5) Target organs taken from the USEPA Regional Screening Level Calculator - Access May 26, 2016

(6) It is assumed that 5% of total chromium is in the hexavalent form, based on the results of the Supplemental Investigation. The PRGs for the sole trivalent and hexavalent forms of chromium or for comparison purposes only

(7) HI = Hazard Index

(8) NA = Not applicable

(9) NOAEL = No observable adverse effect level

(10) PRG = Preliminary Remediation Goal

(11) THQ = Target hazard quotient

Prepared By: IR (6/20/2016)
Checked By: JMG (6/23/2017)

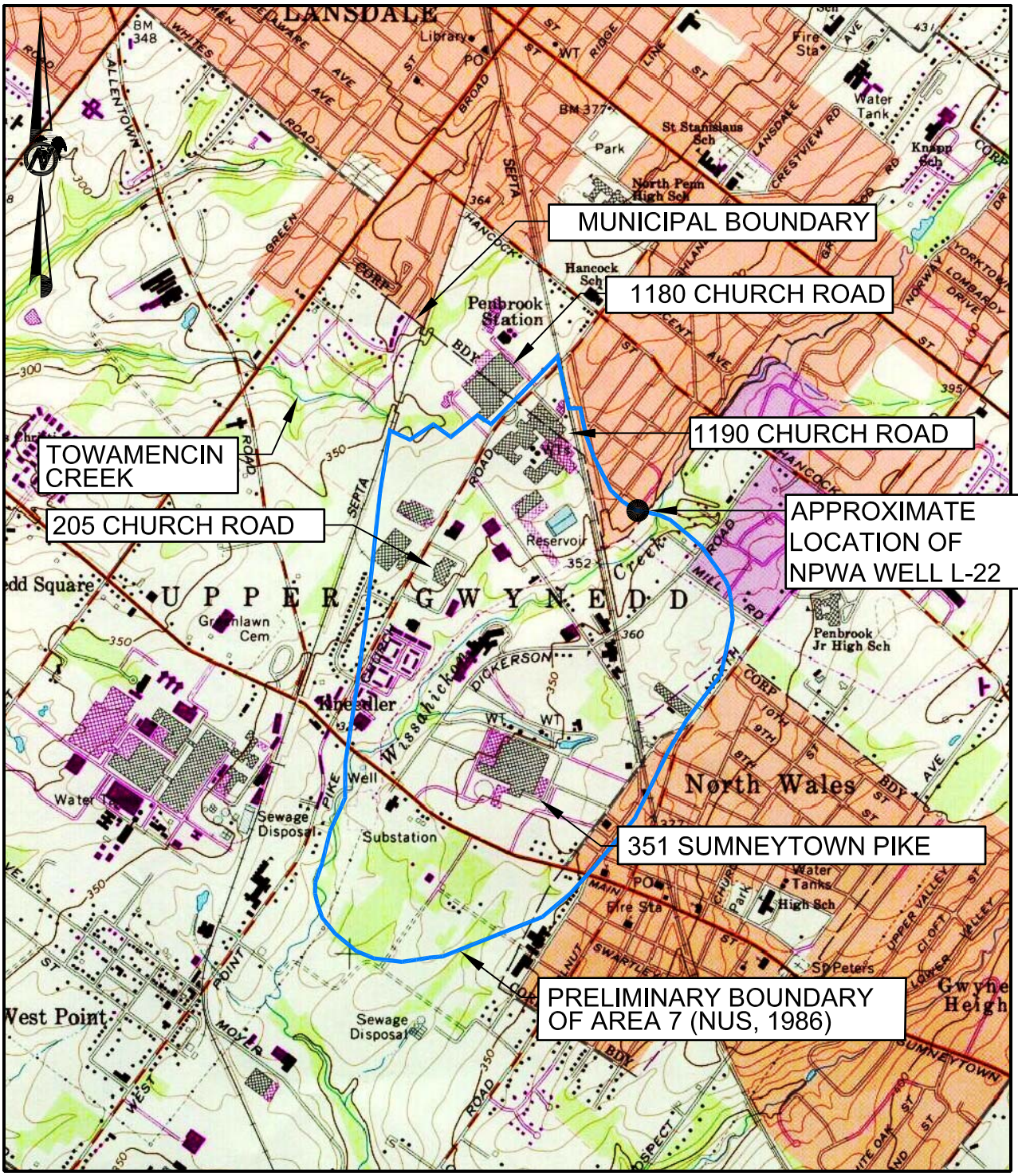
Summary of Constituents above PRGs/Background
1190 Church Road Property
North Penn Area 7 Superfund Site
Montgomery County, Pennsylvania

Chemical Of Concern (COC) / Sample ID	Depth to Bottom of Sample (feet below grade)	Detected Concentration (mg/kg)	Preliminary Remediation Goal[1] (mg/kg)	Background[2]	
				Mean	95% UTL
Arsenic					
AB13-9.5	9.5	14.8	6.8	6.5	12
AB19-24	24	34.5	6.8	6.5	12
AB19-24D	24	24.1	6.8	6.5	12
AB20-19.5	19.5	18.8	6.8	6.5	12
AB40-09	9	26.6	6.8	6.5	12
AB44-06	6	14.4	6.8	6.5	12
Manganese					
AB20-19.5	19.5	3,090	1,900	628	1,619
AB72-09	9	3,400	1,900	628	1,619
AB74-10	10	1,690	1,900	628	1,619
AB74-10D	10	4,300	1,900	628	1,619
AB77-9.5	9.5	21,600	1,900	628	1,619
AB78-10	10	1,950	1,900	628	1,619
Mercury					
AB55-5.5	5.5	73.6	23	0.065	0.29

Notes:
1. Refer to Table 6 for PRG derivation.
2. Golder, 2015. North Penn 7 Background Evaluation.

TJG (6/23/2017)
JMG (6/27/2017)
MSK (11/07/2017)

FIGURES



REFERENCE

1.) BASE MAP TAKEN FROM U.S.G.S. 7.5 MINUTE QUADRANGLE LANSDALE, PA, DATED 1966, PHOTOREVISED 1983.

2000 0 2000
scale feet

Golder Associates
Philadelphia USA

FILE No.	9936548P003
PROJECT No.	993-6548
REV.	0
SCALE	AS SHOWN
DATE	02/06/17
DESIGN	TJG
CADD	AM
CHECK	TJG
REVIEW	MMM

TITLE

NORTH PENN AREA 7 SITE AND MUNICIPALITY BOUNDARIES

NORTH PENN AREA 7

FIGURE 1

Drawing file: 9936548P003.dwg Feb 06, 2017 - 11:27am

PROCESS LINE/PRETREATMENT BUILDING/PAINT SHOP AREA

ROAD C

EASTERN RAIL SPUR

PENNBROOK PARKWAY

PENNBROOK PARKWAY

A

IRON IMPACTED AREA

AREA S/MERCURY IMPACTED AREA

AREA H/CHEMICAL STORAGE AREA

STATION SQUARE BLVD.

TCE IMPACTED AREA
P-2 WELL AREA

FORMER BURN PIT / WESTERN RAIL SPUR

B

ROAD F

ROAD E

HORSESHOE CURVE DR.

HORSESHOE CURVE DR.

FLAMMABLE LIQUID STORAGE AREA AND FORMER CHEMICAL STORAGE AREA

C

CHURCH ROAD

READING CIRCLE

STATION SQUARE BLVD.

WISSAHICKON AVENUE

PENNBROOK PARKWAY

Google earth

LEGEND

- SOIL BORING LOCATION WITH COCs > CONTRIBUTING PRG
- RISK ASSESSMENT AREAS
- EXISTING DEED RESTRICTION AREAS
  PRG – PRELIMINARY REMEDIATION GOAL
  COC – CHEMICAL OF CONCERN
- PARCEL BOUNDARIES

PARCEL IDs

1.) 11-00-02048-01-1
2.) 56-00-01327-01-2
3.) 11-00-02048-00-2
4.) 56-00-01327-00-3
5.) 11-00-02048-02-9
6.) 11-00-02048-03-8
7.) 11-00-02048-04-7
8.) 11-00-02048-05-6

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CADD FILE S1-DEED NOTICE AREA PLAN.DWG, TITLED "PLAN OF DEED NOTICE AREAS," PROVIDED BY RT ENVIRONMENTAL SERVICES, INC. BASE MAP MOVED AND ROTATED INTO WORLD COORDINATES BASED ON CONCRETE MONUMENT SURVEY COORDINATES.

60 0 60 120
SCALE FEET

Golder Associates
Mt. Laurel, New Jersey

REV	DATE	DES.	CADD	CHK	RVW
REVISION DESCRIPTION					

PROJECT

NORTH PENN AREA 7
FOCUSED FEASIBILITY STUDY
LANSDALE, PENNSYLVANIA

TITLE

ALTERNATIVE #2: SAMPLE LOCATIONS WITH COC CONCENTRATIONS > CONTROLLING PRGs AND EXISTING INSTITUTIONAL AND ENGINEERING CONTROLS
1190 CHURCH ROAD

PROJECT No.		993-6548
FILE No.		9936548P001
REV. 0	SCALE	AS SHOWN
DESIGN	RMW	02/06/17
CADD	AM	02/06/17
CHECK	TJG	02/06/17
REVIEW	MMM	02/06/17

FIGURE 2

Drawing Path: 9936548P001.dwg Feb 06, 2017 - 12:21pm

Drawing file: 9936548P021.dwg Feb 01, 2018 - 11:37am

Golder Associates
Mt. Laurel, New Jersey

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT
NORTH PENN AREA 7
FOCUSED FEASIBILITY STUDY
LANSDALE, PENNSYLVANIA

TITLE
ALTERNATIVE #3: SAMPLE LOCATIONS WITH COC CONCENTRATIONS > CONTROLLING PRGs AND REVISED INSTITUTIONAL AND ENGINEERING CONTROLS
1190 CHURCH ROAD

PROJECT No.		993-6548
FILE No.		9936548P021
REV. 0	SCALE	AS SHOWN
DESIGN	MSK	02/01/18
CADD	AM	02/01/18
CHECK	MKS	02/01/18
REVIEW	RSW	02/01/18

FIGURE 3

APPENDIX A
WAIVER OF SITE-SPECIFIC CLEANUP STANDARD FOR TCE

APPENDIX O

SELECTED CORRESPONDENCE

USEPA AUTHORIZATION LETTER FOR WAIVER OF TCE SITE SPECIFIC CLEAN-UP STANDARD

Walsh, David

From: Ley, David
Sent: Tuesday, January 18, 2005 2:00 PM
To: Bussa, Brian (B.J.); Walsh, David
Subject: FW: Waiver of removal cleanup number for FLSA

-----Original Message-----
From: Moultrie.Deanna@epamail.epa.gov [mailto:Moultrie.Deanna@epamail.epa.gov]
Sent: Tuesday, January 18, 2005 1:26 PM
To: Charles.Elliott@DeweyCommercial.com
Cc: Ley, David
Subject: Waiver of removal cleanup number for FLSA

Hello Charles -

This e-mail is to document my approval of waiving the TCE removal cleanup number (106 ppb) for sample P-3B, where the analytical results show a detection of 140 ppb for TCE. This will complete delineation in this area for the purpose of this removal action.

A hard copy of this decision will be mailed shortly.

Thanks,
Deanna
(215) 814-5125

APPENDIX B
EXISTING DEED RESTRICTIONS – 1190 CHURCH ROAD PROPERTY

RECORDER OF DEEDS
MONTGOMERY COUNTY
Nancy J. Becker

One Montgomery Plaza
Swede and Airy Streets ~ Suite 303
P.O. Box 311 ~ Norristown, PA 19404
Office: (610) 278-3289 ~ Fax: (610) 278-3869

DEED BK 5757 PG 01742 to 01750
INSTRUMENT # : 2010007834
RECORDED DATE: 01/28/2010 12:25:47 PM

1269214-0009R

MONTGOMERY COUNTY ROD

OFFICIAL RECORDING COVER PAGE

Document Type:	Deed Miscellaneous	**Transaction #:**	1168637 - 1 Doc(s)
Document Date:	12/07/2009	**Document Page Count:**	8
Reference Info:		**Operator Id:**	gbrown

RETURN TO: (Pickup)
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

SUBMITTED BY:
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

*** PROPERTY DATA:**
Parcel ID #: 11-00-02048-01-1
Address: 0 CHURCH RD
1
PA
Municipality:
School District:

*** ASSOCIATED DOCUMENT(S):**

FEES / TAXES:

Recording Fee:Deed Miscellaneous	$52.00
Additional Pages Fee	$8.00
Total:	$60.00

DEED BK 5757 PG 01742 to 01750
Recorded Date: 01/28/2010 12:25:47 PM

I hereby CERTIFY that this document is recorded in the Recorder of Deeds Office in Montgomery County, Pennsylvania.

RECORDER'S OFFICE • MONTGOMERY COUNTY, PA •

Nancy J. Becker
Recorder of Deeds

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THIS PAGE IS NOW PART OF THIS LEGAL DOCUMENT

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***COVER PAGE DOES NOT INCLUDE ALL DATA, PLEASE SEE INDEX AND DOCUMENT FOR ANY ADDITIONAL INFORMATION.**

PREPARED BY AND RETURN TO:
Kermit L. Rader, Esquire
Hamburg, Rubin, Mullin, Maxwell & Lupin
375 Morris Road, Post Office Box 1479
Lansdale, PA 19446-0773

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
11-00-02048-01-1 LANSDALE
0 CHURCH RD 1
LANSDALE PARKING AUTHORITY
B 054 U 130 L 1 8910 DATE: 01/26/2010 $10.00
BR

DECLARANT/GRANTOR: **Lansdale Parking Authority**

PROPERTY ADDRESS: **Unit I, Station Square Condominium**
Southeast corner of Church Road and Wissahickon Avenue,
Lansdale Borough and Upper Gwynned Township,
Montgomery County, Pennsylvania

TAX PARCEL NO.: **11-00-02048-01-1**

2010 JAN 26 PM 12: 11
RECORDER OF DEEDS
MONTGOMERY COUNTY

B
8

DECLARATION OF ENVIRONMENTAL COVENANTS

This Declaration Environmental Covenants is executed pursuant to the Pennsylvania Uniform Environmental Covenants Act, Act No. 68 of 2007, 27 Pa. C.S. §§ 6501 — 6517 (the "UECA"). This Declaration of Environmental Covenants subjects the Property identified in Paragraph 1 to the activity and/or use limitations in this document. As indicated later in this document, this Declaration of Environmental Covenants has been approved by the Pennsylvania Department of Environmental Protection (the "Department").

1. **Property Affected.** The property affected (the "Property") by this Declaration of Environmental Covenants is located in Lansdale Borough, Montgomery County, Pennsylvania and has the address 1190 Church Road, Lansdale, PA 19446.

The County Parcel Identification Number of the Property is: 11-00-02048-01-1.

The latitude and longitude of the center of the Property affected by this Declaration of Environmental Covenants is: +40°13' 40.20" / -75 17' 2.85".

The Property has been known by the following name: A portion of the former Ford Electronics Factory.

A complete description of the Property is attached to this Declaration of Environmental Covenants as Exhibit A. A map of the Property is attached to this Declaration of Environmental Covenants as Exhibit B.

2010 JAN 28 PM 12: 18
RECORDER OF DEEDS
MONTGOMERY COUNTY

2. **Property Owner / Declarant/Grantor.** Lansdale Parking Authority (the "Authority") is the owner of the Property. The mailing address of the Authority is: Lansdale Parking Authority, One Vine Street, Lansdale, Pennsylvania 19446.

3. **Description of Contamination & Remedy.** The contamination identified on the Property and the remediation of such contamination are described in detail in the Final Report entitled Final Report, Site-Specific Standards For Soil, PADEP Act 2 Land Recycling Program, Former Ford Electronics Facility (the "Site"), submitted by Dewey Commercial, dated November 2007, which was approved by the Pennsylvania Department of Environmental Protection in a letter dated February 7, 2008. The Final Report covers Units I through VI and the Common Elements of the Station Square Condominium. None of the soil areas of concern addressed by the Final Report are located in the Property. However, since the Property is located within the North Penn Area 7 Superfund Site designated by the United States Environmental Protection Agency based on region-wide groundwater contamination by solvents, groundwater use and installation of wells for use of groundwater will be prohibited in the Property. In order to eliminate any potential pathway of exposure, vapor barriers have been installed under each building constructed to date and will be installed under all future buildings prior to slab on-grade concrete foundations being poured.

4. **Activity & Use Limitations.** The Property is subject to the following activity and use limitations, which the Authority and any successor owner of the Property shall abide by:

(a) wells for use of groundwater shall not be installed and groundwater shall not be used; and

(b) vapor barriers shall be installed and maintained under all buildings.

5. **Notice of Limitations in Future Conveyances.** Each instrument hereafter conveying the Property shall contain a notice of the activity and use limitations set forth in this Declaration of Environmental Covenants and shall provide the recorded location of this Declaration of Environmental Covenants.

6. **Compliance Reporting.** By the end of every January, the Authority and each subsequent owner of the Property shall submit to the Department written documentation stating whether or not the activity and use limitations in this Declaration of Environmental Covenants are being abided by. The Authority and each subsequent owner of the Property shall submit to the Department written documentation following any transfer of the Property concerning proposed changes in use of the Property, filing of applications for building permits for the Property or proposals for any site work affecting the contamination on the Property subject to this Declaration of Environmental Covenants.

7. **Access by the Department.** In addition to any rights already possessed by the Department, this Declaration of Environmental Covenants grants to the Department a right of access to the Property in connection with implementation or enforcement of this Declaration of Environmental Covenants.

8. **Recordation & Proof & Notification.** Within 30 days after the date of the Department's approval, the Authority shall file this Declaration of Environmental Covenants with the Recorder of Deeds for each County in which the Property is located, and send a file-stamped copy of this Declaration of Environmental Covenants to the Department within 60 days of recordation. Within that time period, the Authority also shall send a file-stamped copy to each of the following: each Municipality and County in which the Property is located; each person holding a recorded interest in the Property; and each person in possession of the Property.

9. **Termination or Modification.** This Declaration of Environmental Covenants may only be terminated or modified in accordance with Section 9 of UECA, 27 Pa. C.S. § 6509.

10. **Department's Address.** Communications with the Department regarding this Declaration of Environmental Covenants shall be sent to:

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Environmental Cleanup Program Manager
2 East Main Street
Norristown, PA 19401

[The remainder of this page is left intentionally blank]

ACKNOWLEDGMENTS:

Dated the 7th day of December 2009.

Grantor

LANSDALE PARKING AUTHORITY

By: Walter Kobasa
Name: Walter Kobasa
Title: Chairman

COMMONWEALTH OF PENNSYLVANIA)
)
COUNTY OF MONTGOMERY)

On this 7th day of December, 2009, before me, the undersigned officer, personally appeared WALTER KOBASA, who acknowledged himself/herself to be the CHAIRMAN [Title] of Lansdale Parking Authority, whose name is subscribed to this Declaration, and acknowledged that s/he executed same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Linda B Rufe
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Linda B. Rufe, Notary Public
Lansdale Boro, Montgomery County
My Commission Expires Oct. 16, 2013
Member, Pennsylvania Association of Notaries

{00442916;v1}

Property Owner: Lansdale Parking Authority
Property Address: 1190 Church Road
Lansdale Borough
Montgomery County

APPROVED, by Commonwealth of Pennsylvania,
Department of Environmental Protection
By: _____ Date: 1/11/10
Name: Stephan Sinding
Title: Environmental Cleanup Program Manager
PADEP - SERO

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF MONTGOMERY

On this 11th day of January, 2010, before me, the undersigned officer, personally appeared Stephan Sinding who acknowledged himself to be the Manager of the Environmental Cleanup Program of the Commonwealth of Pennsylvania, Department of Environmental Protection, Southeast Regional Office, whose name is subscribed to this Environmental Covenant, and acknowledged that he executed same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Judy Lashley, Notary Public
Norristown Boro, Montgomery County
My Commission Expires July 28, 2012
Member, Pennsylvania Association of Notaries

EXHIBIT A

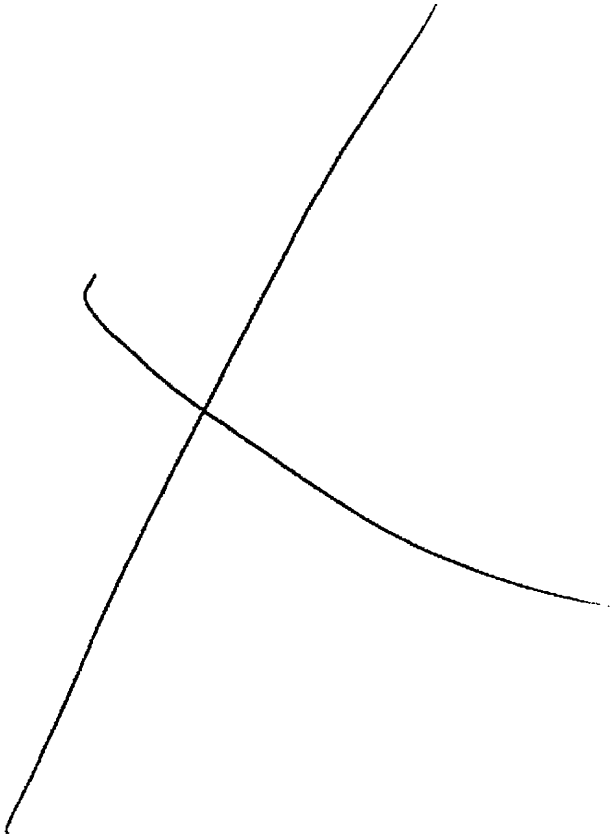
LEGAL DESCRIPTION OF PROPERTY

Unit I, Tax Parcel No. 11-00-02048-01-1

Pursuant to Declaration of Condominium for Station Square Condominium filed in the Montgomery County, Pennsylvania Recorder's Office in Book 5514, Page 618, as it has been amended to date.

EXHIBIT B

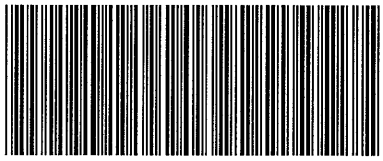
MAP OF PROPERTY



RECORDER OF DEEDS
MONTGOMERY COUNTY
Nancy J. Becker

One Montgomery Plaza
Swede and Airy Streets ~ Suite 303
P.O. Box 311 ~ Norristown, PA 19404
Office: (610) 278-3289 ~ Fax: (610) 278-3869

DEED BK 5757 PG 01712 to 01731
INSTRUMENT # : 2010007832
RECORDED DATE: 01/28/2010 12:21:46 PM



1269209-0011O

MONTGOMERY COUNTY ROD

OFFICIAL RECORDING COVER PAGE

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RETURN TO: (Pickup)
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

SUBMITTED BY:
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

*** PROPERTY DATA:**
Parcel ID #: 56-00-01327-01-2
Address: 0 CHURCH RD
6
PA
Municipality:
School District:

*** ASSOCIATED DOCUMENT(S):**

FEES / TAXES:

Recording Fee:Deed Miscellaneous	$52.00
Additional Pages Fee	$30.00
Total:	$82.00

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Recorded Date: 01/28/2010 12:21:46 PM

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Nancy J. Becker
Recorder of Deeds

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PREPARED BY:
Christine R. Deutsch, Esquire
Wolf, Block, Schorr and Solis-Cohen LLP
1650 Arch Street, 22nd Floor
Philadelphia, PA 19103

RECORD AND RETURN TO:
Andrea Connors
LandAmerica Commercial Services
123 N. Olive Street
Media, PA 19063

MONTGOMERY COUNTY COMMISSIONERS REGISTRY
56-00-01327-01-2 UPPER GWYNEDD
0 CHURCH RD 6
DCI STATION SQUARE LP $10.00
B 022 U 107 L 6 4205 DATE: 01/26/2010 BR

B
19

DECLARANT/GRANTOR: **DCI Station Square, LP**

PROPERTY ADDRESS: **Unit VI, Station Square Condominium**
Southeast corner of Church Road and Wissahickon Avenue,
Lansdale Borough and Upper Gwynned Township, Montgomery County, Pennsylvania

TAX PARCEL NOS.: **56-00-01327-01-2**

DECLARATION ENVIRONMENTAL COVENANTS

This Declaration Environmental Covenants is executed pursuant to the Pennsylvania Uniform Environmental Covenants Act, Act No. 68 of 2007, 27 Pa. C.S. §§ 6501 – 6517 (the "UECA"). This Declaration of Environmental Covenants subjects the Property identified in Paragraph 1 to the activity and/or use limitations in this document. As indicated later in this document, this Declaration of Environmental Covenants has been approved by the Pennsylvania Department of Environmental Protection (the "Department").

1. **Property Affected**. The property affected (the "Property") by this Declaration of Environmental Covenants is located partly in Lansdale Borough and partly in Upper Gwynned Township, Montgomery County, Pennsylvania and has the address 1190 Church Road, Lansdale, PA 19446.

The County Parcel Identification Number of the Property is: 56-00-01327-01-2.

The latitude and longitude of the center of the Property affected by this Declaration of Environmental Covenants is: +40° 13' 40.20" / -75 17' 2.85".

The Property has been known by the following name: A portion of the former Ford Electronics Factory.

A complete description of the Property is attached to this Declaration of Environmental Covenants as Exhibit A. A map of the Property is attached to this Declaration of Environmental Covenants as Exhibit B.

2. **Property Owner / Declarant/Grantor**. DCI Station Square, LP ("DCI") is the owner of the Property. The mailing address of DCI is: c/o Dewey Commercial, 435 Devon Park Drive, Building 200, Wayne, PA 19087.

3. **Description of Contamination & Remedy**. The contamination and the remediation of such contamination are described in detail in the Final Report entitled Final Report, Site-Specific Standards For Soil, PADEP Act 2 Land Recycling Program, Former Ford Electronics Facility (the "Site"), submitted by Dewey Commercial, dated November 2007 (the "Final Report"), which was approved by the Pennsylvania Department of Environmental Protection in a letter dated February 7, 2008. Based on investigation and remediation conducted by a prior owner of the Property, eight areas of concern in soil at the Site were identified where the Residential Statewide Health Standard was not attained (all of which areas affect the Property). The constituents identified were arsenic, bromomethane, cadmium, cis 1 &2 dichloroethylene, iron, mercury, tetrachloroethylene, trichloroethylene and vinylchloride. Each of these areas of concern was further delineated to identify the areal extent of the exceedance. Soil was excavated from two of the areas of concern, known as the former Building 40-X area and the former Flammable Liquid Storage Area. A total of 5,400 cubic yards ("c.y.") of impacted soil was excavated from the former Building 40-X area and 2,100 c.y. of impacted soil from the Flammable Liquid Storage Area. Soils were excavated to bedrock in both areas. Post-excavation soil samples confirmed that the relevant site-specific cleanup standards and residential statewide health standards listed in the Final Report had been attained in both areas. In order to eliminate any potential pathway of exposure, vapor barriers have been installed under each building constructed to date and will be installed under all future buildings prior to slab on-grade concrete foundations being poured. In addition, caps consisting of either two feet of clean fill or asphalt paving have been and will be installed above all soil areas of concern where no buildings are to be constructed.

4. **Activity & Use Limitations**. The Property is subject to the following activity and use limitations, which DCI and any successor thereto, each Unit Owner, and each subsequent Unit Owner shall abide by:

(a) wells for use of groundwater shall not be installed and groundwater shall not be used;

(b) in the areas of concern shown on the figure attached as Exhibit B and identified in the descriptions attached as Exhibit C:

(i) vapor barriers shall be installed and maintained under all buildings;

(ii) caps consisting of clean fill of at least two feet in depth or asphalt paving shall be installed and maintained over all areas of concern above which buildings are not constructed; and

(iii) soil underlying caps shall not be excavated or otherwise disturbed unless the material disbursed is approximately characterized and managed.

5. **Notice of Limitations in Future Conveyances**. Each instrument hereafter conveying any interest in the Property shall contain a notice of the activity and use limitations set forth in this Declaration of Environmental Covenants and shall provide the recorded location of this Declaration of Environmental Covenants.

6. **Compliance Reporting**. By the end of every January, DCI and each subsequent owner of the Property shall submit to the Department and the Grantee written documentation stating whether or not the activity and use limitations in this Declaration of Environmental Covenants are being abided by. DCI and each subsequent owner of the Property shall submit to the Department and the Grantee written documentation following any transfer of the Property concerning proposed changes in use of the Property, filing of applications for building permits for the Property or proposals for any site work affecting the contamination on the Property subject to this Declaration of Environmental Covenants.

7. **Access by the Department**. In addition to any rights already possessed by the Department, this Environmental Covenants grants to the Department a right of access to the Property in connection with implementation or enforcement of this Declaration of Environmental Covenants.

8. **Recordation & Proof & Notification**. Within 30 days after the date of the Department's approval, DCI shall file this Declaration of Environmental Covenants with the Recorder of Deeds for each County in which the Property is located, and send a file-stamped copy of this Declaration of Environmental Covenants to the Department within 60 days of recordation. Within that time period, DCI also shall send a file-stamped copy to each of the following: each Municipality and County in which the Property is located; the Grantee; each person holding a recorded interest in the Property; and each person in possession of the Property.

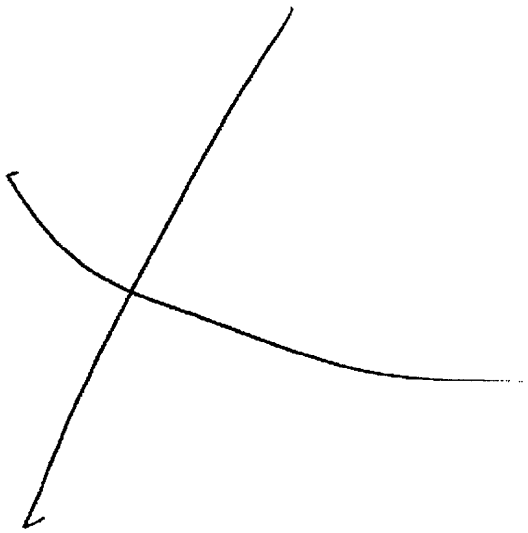
9. **Termination or Modification**. This Declaration of Environmental Covenants may only be terminated or modified in accordance with Section 9 of UECA, 27 Pa. C.S. § 6509.

10. **Department's Address.** Communications with the Department regarding this Declaration of Environmental Covenants shall be sent to:

Pennsylvania Department of Environmental Protection

Southeast Regional Office
Environmental Cleanup Program Manager
2 East Main Street
Norristown, PA 19401

[*The remainder of this page is left intentionally blank*]



PHL:5807913.3/DEW007-210408

ACKNOWLEDGMENTS:

Dated the 4th day of November 2008.

Grantor

DCI STATION SQUARE, LP

By: DCI-Station Square, LLC,
its general partner

By: _____
Name: John M Dewey
Title: Manager

COMMONWEALTH OF PENNSYLVANIA)
)
COUNTY OF ~~DELAWARE~~ CHESTER)

On this 4th day of November 2008, before me, the undersigned officer, personally appeared John M. Dewey, who acknowledged himself/herself to be the Manager [Title] of DCI-Station Square, LLC, the general partner of DCI Station Square, LP, whose name is subscribed to this Declaration, and acknowledged that s/he executed same for the purposes therein contained by signing the name of the John M. Dewey as general partner of the limited partnership, by himself/herself, as such officer.

In witness whereof, I hereunto set my hand and official seal.

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN B. GLAHN, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires August 4, 2011

PHL:5807913.3/DEW007-210408

Grantee

DCI STATION SQUARE, LP

By: DCI-Station Square, LLC,
its general partner

By: _____
Name: John M. Dewey
Title: Manager

COMMONWEALTH OF PENNSYLVANIA)
Chester)
COUNTY OF ~~DELAWARE~~)

On this 4th day of November 2008, before me, the undersigned officer, personally appeared John M Dewey, who acknowledged himself/herself to be the Manager [Title] of DCI Station Square, LLC the general partner of DCI Station Square, LP, whose name is subscribed to this Declaration, and acknowledged that s/he executed same for the purposes therein contained by signing the name of the John M Dewey as general partner of the limited partnership, by himself/herself, as such officer.

In witness whereof, I hereunto set my hand and official seal.

Karen B Glahn
Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN B. GLAHN, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires August 4, 2011

PHL:5807913.3/DEW007-210408

Property Owner: DCI Station Square, LP
Property Address: 1190 Church Road
Lansdale Borough
Montgomery County

APPROVED, by Commonwealth of Pennsylvania,
Department of Environmental Protection
By: _____ Date: 1/11/10
Name: Stephan Sinding
Title: Environmental Cleanup Program Manager
PADEP - SERO

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF MONTGOMERY

On this 11th day of January, 2010, before me, the undersigned officer, personally appeared Stephan Sinding who acknowledged himself to be the Manager of the Environmental Cleanup Program of the Commonwealth of Pennsylvania, Department of Environmental Protection, Southeast Regional Office, whose name is subscribed to this Environmental Covenant, and acknowledged that he executed same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Judy Lashley, Notary Public
Norristown Boro, Montgomery County
My Commission Expires July 28, 2012
Member, Pennsylvania Association of Notaries

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

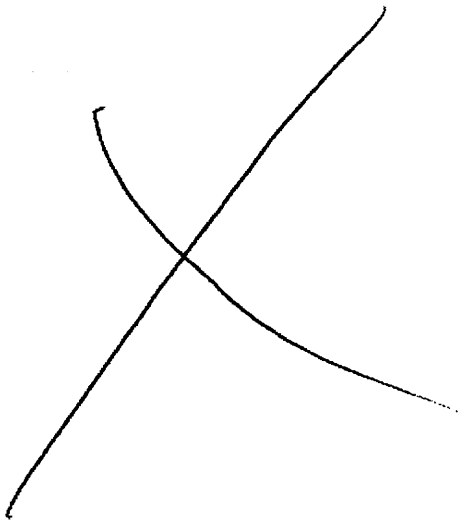
Unit VI, Tax Parcel No. 56-00-01327-01-2

Pursuant to Declaration of Condominium for Station Square Condominium filed in the Montgomery County, Pennsylvania Recorder's Office in Book 5514, Page 618, as it has been amended to date.

PHL:5807913.3/DEW007-210408

EXHIBIT B

MAP OF PROPERTY



PHL:5807913.3/DEW007-210408

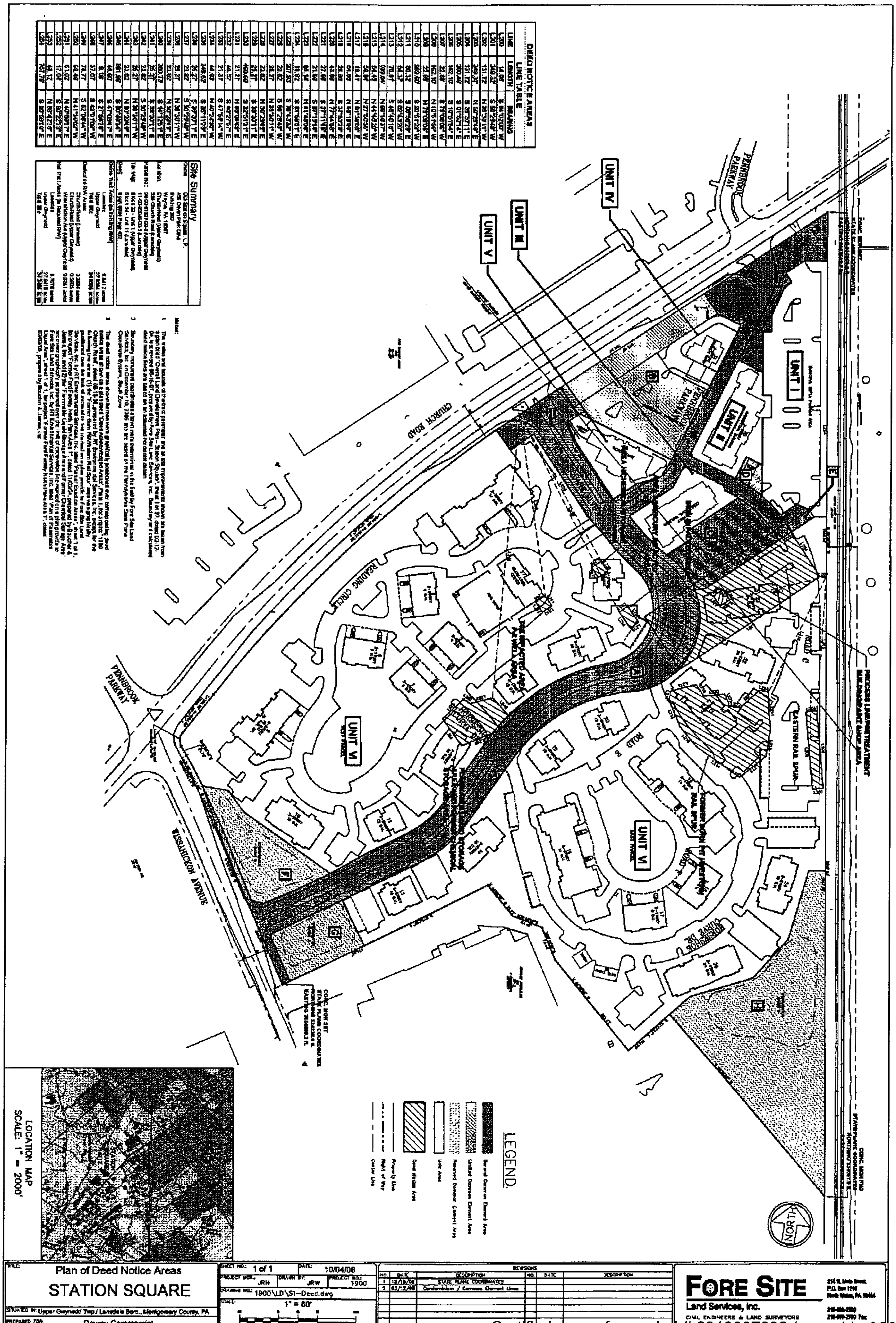
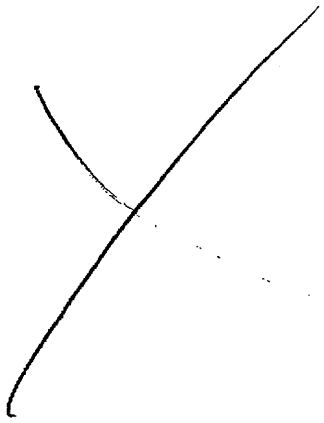

Plan of Deed Notice Areas
STATION SQUARE
SITUATED IN: Upper Gwynedd Twp./ Lansdale Boro., Montgomery County, PA
PREPARED FOR: Dewey Commercial
SHEET NO.: 1 of 1
DATE: 10/04/06
PROJECT NO.: 1900
DRAWN BY: JRW
DRAWING NO.: 1900\LD\S1-Deed.dwg
SCALE: 1" = 80'
FORE SITE
Land Services, Inc.
CIVIL ENGINEERS & LAND SURVEYORS
LOCATION MAP
SCALE: 1" = 2000'
LEGEND
UNIT I
UNIT II
UNIT III
UNIT IV
UNIT V
UNIT VI
CHURCH ROAD
WISSAHICKON AVENUE
PENNBROOK PARKWAY
READING CIRCLE
EASTERN RAIL SPUR
DEED NOTICE AREAS
LINE TABLE
Site Summary

EXHIBIT C

LEGAL DESCRIPTION OF AREAS OF CONTAMINATION AFFECTING UNIT VI



PHL:5807913.3/DEW007-210408

FORE SITE
Land Services, Inc.

Description of a "Area H/Chemical Storage Area" Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "Area H/Chemical Storage Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along the southeast sideline of Church Road South 50°42'20" West, 764.94 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (2) on and through lands of DCI-Station Square, L.P. South 35°11'23" East, 349.52 feet;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) South 39°30'11" East, 25.27 feet, (2) South 50°29'49" West, 23.82 feet, (3) North 39°30'11" West, 25.27 feet, (4) North 50°29'49" East, 23.82 feet to the point and place of beginning.

CONTAINING 602 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

FORE SITE
Land Services, Inc.

Description of a "Eastern Rail Spur"
Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "Eastern Rail Spur" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along lands of North Penn Railroad Company South 05°58'00" East, 757.76 feet, (2) on and through lands of DCI-Station Square, L.P. South 01°52'14" East, 280.46 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) South 10°51'54" East, 162.10 feet, (2) South 79°08'06" West, 22.89 feet, (3) North 10°51'54" West, 162.10 feet, (4) North 79°08'06" East, 22.89 feet to the point and place of beginning.

CONTAINING 3,710 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

FORE SITE
Land Services, Inc.

Description of a "Iron Impacted Area"
Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "Iron Impacted Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along lands of North Penn Railroad Company South 05°58'00" East, 757.76 feet, (2) on and through lands of DCI-Station Square, L.P. South 70°43'30" West, 207.93 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) South 50°29'49" West, 23.82 feet, (2) North 39°30'11" West, 25.27 feet, (3) North 50°29'49" East, 23.82 feet, (4) South 39°30'11" East, 25.27 feet to the point and place of beginning.

CONTAINING 602 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

FORE SITE
Land Services, Inc.

Description of a "Area S/Mercury Impacted Area" Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "Area S/Mercury Impacted Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along the southeast sideline of Church Road South 50°42'20" West, 764.94 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (2) on and through lands of DCI-Station Square, L.P. South 32°51'31" East, 460.66 feet;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) North 49°04'45" East, 21.27 feet, (2) South 40°27'57" East, 40.52 feet, (3) South 47°59'14" West, 21.31 feet, (4) North 40°24'30" West, 40.93 feet to the point and place of beginning.

CONTAINING 867 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

FORE SITE
Land Services, Inc.

Description of a "Former Burn Pit/Western Rail Spur" Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "Former Burn Pit/Western Rail Spur" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along lands of North Penn Railroad Company South 05°58'00" East, 757.76 feet, (2) on and through lands of DCI-Station Square, L.P. South 20°51'29" West, 269.60 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following fourteen courses: (1) South 08°58'29" East, 80.32 feet, (2) South 02°43'20" West, 54.37 feet, (3) South 45°40'18" West, 70.91 feet, (4) North 60°10'37" West, 109.54 feet, (5) North 44°45'20" West, 54.45 feet, (6) North 27°50'55" West, 59.84 feet, (7) North 01°36'06" East, 18.41 feet, (8) North 69°18'08" East, 54.95 feet, (9) South 37°53'25" East, 28.85 feet, (10) North 77°44'08" East, 43.69 feet, (11) South 27°11'45" East, 27.69 feet, (12) South 87°15'14" East, 21.66 feet, (13) North 41°48'06" East, 55.14 feet, (14) South 81°59'01" East, 18.92 feet to the point and place of beginning.

CONTAINING 25,421 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

FORE SITE
Land Services, Inc.

Description of a "TCE Impacted Area/P-2 Well Area" Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "TCE Impacted Area/P-2 Well Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along the southeast sideline of Church Road South 50°42'20" West, 764.94 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (2) on and through lands of DCI-Station Square, L.P. South 14°12'51" East, 380.73 feet;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) South 39°30'11" East, 25.27 feet, (2) South 50°29'49" West, 23.82 feet, (3) North 39°30'11" West, 25.27 feet, (4) North 50°29'49" East, 23.82 feet to the point and place of beginning.

CONTAINING 602 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

FORE SITE
Land Services, Inc.

Description of a "Process Line/Pretreatment Building/Paint Shop Area" Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP & LANSDALE BOROUGH, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate partly in Lansdale Borough and partly in Upper Gwynedd Township, Montgomery County, Pennsylvania at 525 Church Road and 1190 Church Road, being shown as a "Process Line/Pretreatment Building/Paint Shop Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along lands of North Penn Railroad Company South 05°58'00" East, 757.76 feet, (2) on and through lands of DCI-Station Square, L.P. South 84°02'00" West, 14.05 feet;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) South 50°29'49" West, 349.32 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (2) North 39°30'11" West, 131.72 feet, (3) North 50°29'49" East, 349.32 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (4) South 39°30'11" East, 131.72 feet to the point and place of beginning.

CONTAINING 46,011 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

FORE SITE
Land Services, Inc.

Description of a "Flammable Liquid Storage Area and Former Chemical Storage Area" Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "Flammable Liquid Storage Area and Former Chemical Storage Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along the southeast sideline of Church Road South 50°42'20" West, 764.94 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (2) on and through lands of DCI-Station Square, L.P. South 00°48'34" East, 591.96 feet;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following eight courses: (1) South 47°03'47" East, 49.60 feet, (2) South 27°56'28" East, 9.18 feet, (3) South 42°01'09" West, 37.07 feet, (4) South 62°06'44" West, 78.77 feet, (5) North 41°36'03" West, 69.48 feet, (6) North 40°58'57" East, 61.02 feet, (7) South 60°22'53" East, 17.04 feet, (8) North 69°42'35" East, 48.12 feet to the point and place of beginning.

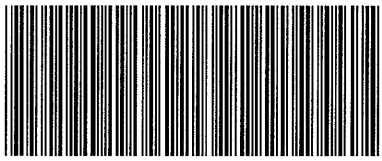
CONTAINING 8,613 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

RECORDER OF DEEDS
MONTGOMERY COUNTY
Nancy J. Becker

One Montgomery Plaza
Swede and Airy Streets ~ Suite 303
P.O. Box 311 ~ Norristown, PA 19404
Office: (610) 278-3289 ~ Fax: (610) 278-3869

DEED BK 5757 PG 01698 to 01711
INSTRUMENT # : 2010007831
RECORDED DATE: 01/28/2010 12:21:34 PM



1269208-0011N

MONTGOMERY COUNTY ROD

OFFICIAL RECORDING COVER PAGE

Document Type:	Deed Miscellaneous	**Transaction #:**	1168627 - 1 Doc(s)
Document Date:	12/14/2009	**Document Page Count:**	13
Reference Info:		**Operator Id:**	jmacgreg

RETURN TO: (Mail)
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

SUBMITTED BY:
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

*** PROPERTY DATA:**

Parcel ID #:	11-00-02048-00-2	56-00-01327-00-3
Address:	525 CHURCH RD CE PA	CHURCH RD PA
Municipality:		
School District:		

*** ASSOCIATED DOCUMENT(S):**

FEES / TAXES:

Recording Fee:Deed Miscellaneous	$52.00
Additional Pages Fee	$18.00
Additional Parcels Fee	$10.00
Unique Muni Fee	$5.50
Total:	$85.50

DEED BK 5757 PG 01698 to 01711
Recorded Date: 01/28/2010 12:21:34 PM

I hereby CERTIFY that this document is recorded in the Recorder of Deeds Office in Montgomery County, Pennsylvania.

Nancy J. Becker
Recorder of Deeds

PLEASE DO NOT DETACH

THIS PAGE IS NOW PART OF THIS LEGAL DOCUMENT

NOTE: If document data differs from cover sheet, document data always supersedes.
***COVER PAGE DOES NOT INCLUDE ALL DATA, PLEASE SEE INDEX AND DOCUMENT FOR ANY ADDITIONAL INFORMATION.**

PREPARED BY AND RETURN TO:
Kermit L. Rader, Esquire
Hamburg, Rubin, Mullin, Maxwell & Lupin
375 Morris Road, Post Office Box 1479
Lansdale, PA 19446-0773

DECLARANT/GRANTOR: **Station Square Condominium Association**

PROPERTY ADDRESS: **Common Elements, Station Square Condominium Southeast corner of Church Road and Wissahickon Avenue, Lansdale Borough and Upper Gwynned Township, Montgomery County, Pennsylvania**

TAX PARCEL NOS.: **11-00-02048-00-2; and 56-00-01327-00-3**

DECLARATION OF ENVIRONMENTAL COVENANTS

This Declaration Environmental Covenants is executed pursuant to the Pennsylvania Uniform Environmental Covenants Act, Act No. 68 of 2007, 27 Pa. C.S. §§ 6501 — 6517 (the "UECA"). This Declaration of Environmental Covenants subjects the Property identified in Paragraph 1 to the activity and/or use limitations in this document. As indicated later in this document, this Declaration of Environmental Covenants has been approved by the Pennsylvania Department of Environmental Protection (the "Department").

1. **Property Affected.** The property affected (the "Property") by this Declaration of Environmental Covenants is located partly in Lansdale Borough and partly in Upper Gwynned Township, Montgomery County, Pennsylvania and has the address 1190 Church Road, Lansdale, PA 19446.

The County Parcel Identification Numbers of the Property are: 11-00-02048-00-2 (Lansdale Borough) and 56-00-01327-00-3 (Upper Gwynned Township).

The latitude and longitude of the center of the Property affected by this Declaration of Environmental Covenants is: +40°13' 40.20" / -75 17' 2.85".

The Property has been known by the following name: A portion of the former Ford Electronics Factory.

A complete description of the Property is attached to this Declaration of Environmental Covenants as Exhibit A. A map of the Property is attached to this Declaration of Environmental Covenants as Exhibit B.

2. **Property Owner/Declarant/Grantor.** The Owners of all Units in the Station Square Condominium (each, a "Unit Owner" and, collectively, the "Unit Owners") are, collectively, the owners of the Property, each owning an undivided ownership interest therein. The Station Square Condominium Association (the "Association") is authorized to act on behalf of the Unit Owners in making this Declaration of Environmental Covenants pursuant to Section 12.2 of the Declaration of Condominium of Station Square Condominium dated June 24, 2004 and recorded in the Office of the Recorder of Deeds of Montgomery County, Pennsylvania in Book 5514 Page 618 (as it has been amended to date, the "Declaration"). The mailing address of the Association is: c/o Dewey Commercial, 435 Devon Park Drive, Building 200, Wayne, PA 19087.

3. **Description of Contamination & Remedy.** The contamination and the remediation of such contamination are described in detail in the Final Report entitled Final Report, Site-Specific Standards For Soil, PADEP Act 2 Land Recycling Program, Former Ford Electronics Facility (the "Site"), submitted by Dewey Commercial, dated November 2007 (the "Final Report"), which was approved by the Pennsylvania Department of Environmental Protection in a letter dated February 7, 2008. Based on investigation and remediation conducted by a prior owner of the Property, eight areas of concern in soil at the Site were identified where the Residential Statewide Health Standard was not attained (two of which areas affect the Property). The constituents identified were arsenic, bromomethane, cadmium, cis 1 &2 dichloroethylene, iron, mercury, tetrachloroethylene, trichioroethylene and vinylchloride. Each of these areas of concern was further delineated to identify the areal extent of the exceedance. Soil was excavated from two of the areas of concern, known as the former Building 40-X area and the former Flammable Liquid Storage Area. A total of 5,400 cubic yards ("c.y.") of impacted soil was excavated from the former Building 40-X area and 2,100 c.y. of impacted soil from the Flammable Liquid Storage Area. Soils were excavated to bedrock in both areas. Post-excavation soil samples confirmed that the relevant site-specific cleanup standards and residential statewide health standards listed in the Final Report had been attained in both areas. In order to eliminate any potential pathway of exposure, vapor barriers have been installed under each building constructed to date and will be installed under all future buildings prior to slab on-grade concrete foundations being poured. In addition, caps consisting of either two feet of clean fill or asphalt paving have been and will be installed above all soil areas of concern where no buildings are to be constructed.

4. **Activity & Use Limitations.** The Property is subject to the following activity and use limitations, which the Association and any successor thereto, each Unit Owner, and each subsequent Unit Owner shall abide by:

(a) wells for use of groundwater shall not be installed and groundwater shall not be used;

(b) in the areas of concern shown on the figure attached as Exhibit B and identified in the descriptions attached as Exhibits C-D:

(i) vapor barriers shall be installed and maintained under all buildings;

(ii) caps consisting of clean fill of at least two feet in depth or asphalt paving shall be installed and maintained over all areas of concern above which buildings are not constructed; and

(iii) soil underlying caps shall not be excavated or otherwise disturbed unless the material disturbed is appropriately characterized and managed.

5. **Notice of Limitations in Future Conveyances.** Each instrument hereafter conveying any Unit in the Condominium shall contain a notice of the activity and use limitations set forth in this Declaration of Environmental Covenants and shall provide the recorded location of this Declaration of Environmental Covenants.

6. **Compliance Reporting.** By the end of every January, the Association and any successor thereto shall submit to the Department written documentation stating whether or not the activity and use limitations in this Declaration of Environmental Covenants are being abided by. The Association and any successor thereto shall submit to the Department written documentation concerning proposed changes in, use of the Property, filing of applications for building permits for the Property or proposals for any site work affecting the contamination on the Property subject to this Declaration of Environmental Covenants.

7. **Access by the Department.** In addition to any rights already possessed by the Department, this Declaration of Environmental Covenants grants to the Department a right of access to the Property in connection with implementation or enforcement of this Declaration of Environmental Covenants.

8. **Recordation & Proof & Notification.** Within 30 days after the date of the Department's approval, the Association shall file this Declaration of Environmental Covenants with the Recorder of Deeds for each County in which the Property is located, and send a file-stamped copy of this Declaration of Environmental Covenants to the Department within 60 days of recordation. Within that time period, the Association also shall send a file-stamped copy to each of the following: each Municipality and County in which the Property is located; each person holding a recorded interest in the Property; and each person in possession of the Property.

9. **Termination or Modification.** This Declaration of Environmental Covenants may only be terminated or modified in accordance with Section 9 of UECA, 27 Pa. C.S. § 6509.

10. **Department's Address.** Communications with the Department regarding this Declaration of Environmental Covenants shall be sent to:

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Environmental Cleanup Program Manager
2 East Main Street
Norristown, PA 19401

[The remainder of this page is left intentionally blank]

ACKNOWLEDGMENTS:

Dated the 14th day of December 2009.

Grantor
STATION SQUARE CONDOMINIUM ASSOCIATION

By: _____
Name: ANTHONY P. LORDI
Title: PRESIDENT

COMMONWEALTH OF PENNSYLVANIA)
Chester)
COUNTY OF ~~DELAWARE~~)

On this 14th day of December 2009 ~~2008~~, before me, the undersigned Officer, personally appeared Anthony Lordi, the President of Station Square Condominium Association, an unincorporated condominium unit owners' association, who executed the above Declaration for the purposes therein contained as President of the association.

In witness whereof, I hereunto set my hand and official seal.

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
KAREN B. GLAHN, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires August 4, 2011

Property Owner: Station Square Condominium Association
Property Address: 1190 Church Road
Lansdale Borough
Montgomery County

APPROVED, by Commonwealth of Pennsylvania,
Department of Environmental Protection
By: _____ Date: 1/11/10
Name: Stephan Sinding
Title: Environmental Cleanup Program Manager
PADEP - SERO

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF MONTGOMERY

On this 11th day of January, 2010, before me, the undersigned officer, personally appeared Stephan Sinding who acknowledged himself to be the Manager of the Environmental Cleanup Program of the Commonwealth of Pennsylvania, Department of Environmental Protection, Southeast Regional Office, whose name is subscribed to this Environmental Covenant, and acknowledged that he executed same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Judy Lashley, Notary Public
Norristown Boro, Montgomery County
My Commission Expires July 28, 2012
Member, Pennsylvania Association of Notaries

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

Common Element, Tax Parcel No. 11-00-02048-00-2
Common Element, Tax Parcel No. 56-00-01327-00-3

Pursuant to Declaration of Condominium for Station Square Condominium filed in the Montgomery County, Pennsylvania Recorder's Office in Book 5514, Page 618, as it has been amended to date.

EXHIBIT B

MAP OF PROPERTY

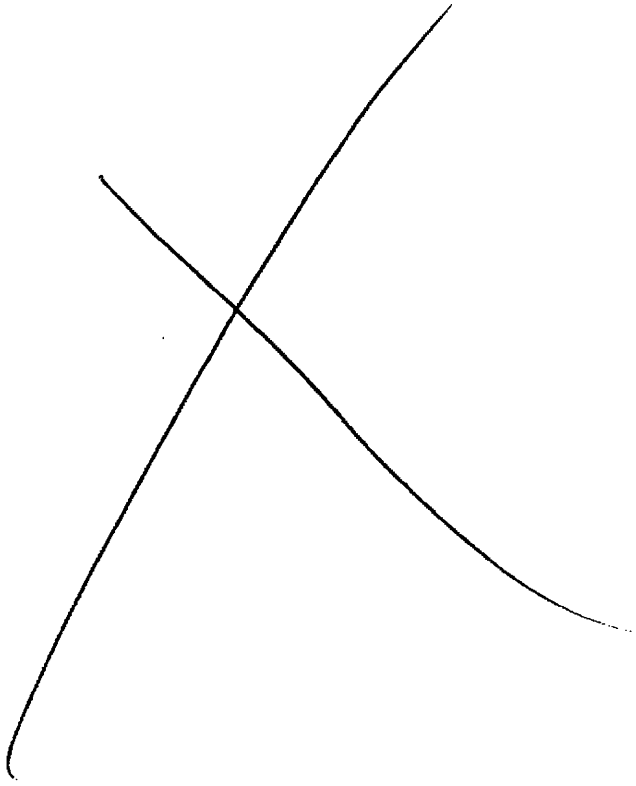


EXHIBIT C

LEGAL DESCRIPTION OF AREA OF CONTAMINATION AFFECTING COMMON ELEMENT A

FORE SITE
Land Services, Inc.

Description of a "TCE Impacted Area/P-2 Well Area"
Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate in Upper Gwynedd Township, Montgomery County, Pennsylvania at 1190 Church Road, being shown as a "TCE Impacted Area/P-2 Well Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along the southeast sideline of Church Road South 50°42'20" West, 764.94 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (2) on and through lands of DCI-Station Square, L.P. South 14°12'51" East, 380.73 feet;

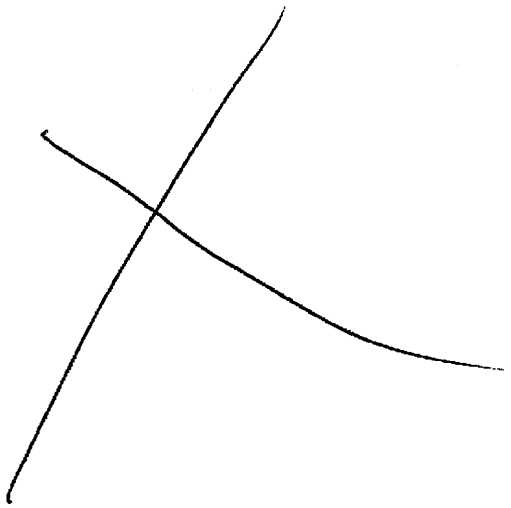
Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) South 39°30'11" East, 25.27 feet, (2) South 50°29'49" West, 23.82 feet, (3) North 39°30'11" West, 25.27 feet, (4) North 50°29'49" East, 23.82 feet to the point and place of beginning.

CONTAINING 602 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

EXHIBIT D

LEGAL DESCRIPTION OF AREA OF CONTAMINATION AFFECTING COMMON ELEMENTS A AND C



FORE SITE
Land Services, Inc.

Description of a "Process Line/Pretreatment Building/Paint Shop Area" Deed Notice Area

Station Square

UPPER GWYNEDD TOWNSHIP & LANSDALE BOROUGH, MONTGOMERY COUNTY, PA
Fore Site Project No. 1900
October 4, 2006

ALL THAT CERTAIN area of land on lands of DCI-Station Square, L.P. situate partly in Lansdale Borough and partly in Upper Gwynedd Township, Montgomery County, Pennsylvania at 525 Church Road and 1190 Church Road, being shown as a "Process Line/Pretreatment Building/Paint Shop Area" Deed Notice Area on a plan entitled "Plan of Deed Notice Areas – Station Square" prepared for Dewey Commercial by Fore Site Land Services, Inc. dated October 4, 2006 and being more particularly described as follows:

BEGINNING at a point on lands of DCI-Station Square, L.P., said point being located the following two courses from a point in Lansdale Borough on the southeast sideline of Church Road (widened to 40 feet on the southeast side at this location), a corner of lands of DCI-Station Square, L.P., in line with lands of the North Penn Railroad Company: (1) along lands of North Penn Railroad Company South 05°58'00" East, 757.76 feet, (2) on and through lands of DCI-Station Square, L.P. South 84°02'00" West, 14.05 feet;

Thence, from said point of beginning, on and through lands of DCI-Station Square, L.P., the following four courses: (1) South 50°29'49" West, 349.32 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (2) North 39°30'11" West, 131.72 feet, (3) North 50°29'49" East, 349.32 feet, crossing over the municipal line dividing Lansdale Borough and Upper Gwynedd Township, (4) South 39°30'11" East, 131.72 feet to the point and place of beginning.

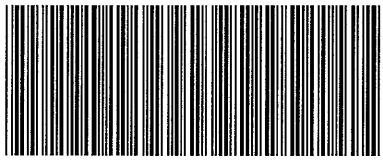
CONTAINING 46,011 square feet of land area, more or less.

CIVIL ENGINEERS • LAND SURVEYORS
214 N. Main Street P.O. Box 1218 North Wales, PA 19454 215-699-2700 215-699-2730 Fax

RECORDER OF DEEDS
MONTGOMERY COUNTY
Nancy J. Becker

One Montgomery Plaza
Swede and Airy Streets ~ Suite 303
P.O. Box 311 ~ Norristown, PA 19404
Office: (610) 278-3289 ~ Fax: (610) 278-3869

DEED BK 5757 PG 01732 to 01741
INSTRUMENT # : 2010007833
RECORDED DATE: 01/28/2010 12:25:21 PM



1269210-0009N

MONTGOMERY COUNTY ROD

OFFICIAL RECORDING COVER PAGE

Document Type:	Deed Miscellaneous	**Transaction #:**	1168632 - 1 Doc(s)
Document Date:	10/27/2008	**Document Page Count:**	9
Reference Info:		**Operator Id:**	dcane

RETURN TO: (Pickup)
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

SUBMITTED BY:
HAMBURG, RUBIN, MULLIN, MAXWELL LUPIN
375 MORRIS RD
LANSDALE, PA 19446

*** PROPERTY DATA:**

Parcel ID #:	11-00-02048-02-9	11-00-02048-03-8	11-00-02048-04-7
Address:	400 490 PENNBROOK PWY	200 290 PENNBROOK PWY	0 CHURCH RD
	2	3	4
	PA	PA	PA
Municipality:			
School District:			

*** ASSOCIATED DOCUMENT(S):**

FEES / TAXES:

Recording Fee:Deed Miscellaneous	$52.00
Additional Pages Fee	$10.00
Additional Parcels Fee	$30.00
Total:	$92.00

DEED BK 5757 PG 01732 to 01741
Recorded Date: 01/28/2010 12:25:21 PM

I hereby CERTIFY that this document is recorded in the Recorder of Deeds Office in Montgomery County, Pennsylvania.

Nancy J. Becker
Recorder of Deeds

PLEASE DO NOT DETACH

THIS PAGE IS NOW PART OF THIS LEGAL DOCUMENT

NOTE: If document data differs from cover sheet, document data always supersedes.
***COVER PAGE DOES NOT INCLUDE ALL DATA, PLEASE SEE INDEX AND DOCUMENT FOR ANY ADDITIONAL INFORMATION.**

PREPARED BY:
Christine R. Deutsch, Esquire
Wolf, Block, Schorr and Solis-Cohen LLP
1650 Arch Street, 22nd Floor
Philadelphia, PA 19103

RECORD AND RETURN TO:
Andrea Connors
LandAmerica Commercial Services
123 N. Olive Street
Media, PA 19063

DECLARANT/GRANTOR: **Patriarch IV LP**

PROPERTY ADDRESS: **Units II-V, Station Square Condominium**
Southeast corner of Church Road and Wissahickon Avenue,
Lansdale Borough and Upper Gwynned Township,
Montgomery County, Pennsylvania

TAX PARCEL NOS.: **11-00-02048-02-9 (Unit II)**
11-00-02048-03-8 (Unit III)
11-00-02048-04-7 (Unit IV)
11-00-02048-05-6 (Unit V)

DECLARATION ENVIRONMENTAL COVENANTS

This Declaration Environmental Covenants is executed pursuant to the Pennsylvania Uniform Environmental Covenants Act, Act No. 68 of 2007, 27 Pa. C.S. §§ 6501 – 6517 (the "UECA"). This Declaration of Environmental Covenants subjects the Property identified in Paragraph 1 to the activity and/or use limitations in this document. As indicated later in this document, this Declaration of Environmental Covenants has been approved by the Pennsylvania Department of Environmental Protection (the "Department").

1. **Property Affected**. The property affected (the "Property") by this Declaration of Environmental Covenants is located partly in Lansdale Borough and partly in Upper Gwynned Township, Montgomery County, Pennsylvania and has the address 1190 Church Road, Lansdale, PA 19446.

The County Parcel Identification Numbers of the Property are: 11-00-02048-02-9 (Unit II); 11-00-02048-03-8 (Unit III); 11-00-02048-04-7 (Unit IV); 11-00-02048-05-6 (Unit V)

The latitude and longitude of the center of the Property affected by this Declaration of Environmental Covenants is: +40° 13' 40.20" / -75 17' 2.85".

The Property has been known by the following name: A portion of the former Ford Electronics Factory.

A complete description of the Property is attached to this Declaration of Environmental Covenants as Exhibit A. A map of the Property is attached to this Declaration of Environmental Covenants as Exhibit B.

2. **Property Owner / Declarant/Grantor**. Patriarch IV LP ("Patriarch") is the owner of the Property. The mailing address of Patriarch is Patriarch IV LP, 311 N. Sumneytown Pike, Suite 1A, North Wales, Pennsylvania 19454.

3. **Description of Contamination & Remedy**. The contamination identified on the Property and the remediation of such contamination are described in detail in the Final Report entitled Final Report, Site-Specific Standards For Soil, PADEP Act 2 Land Recycling Program, Former Ford Electronics Facility (the "Site"), submitted by Dewey Commercial, dated November 2007, which was approved by the Pennsylvania Department of Environmental Protection in a letter dated February 7, 2008. The Final Report covers Units I through VI and the Common Elements of the Station Square Condominium. None of the soil areas of concern addressed by the Final Report are located in the Property. However, since the Property is located within the North Penn Area 7 Superfund Site designated by the United States Environmental Protection Agency based on region-wide groundwater contamination by solvents, groundwater use and installation of wells for use of groundwater will be prohibited in the Property. In order to eliminate any potential pathway of exposure, vapor barriers have been installed under each building constructed to date and will be installed under all future buildings prior to slab on-grade concrete foundations being poured.

4. **Activity & Use Limitations**. The Property is subject to the following activity and use limitations, which Patriarch and each subsequent owner of the Property shall abide by:

(a) wells for use of groundwater shall not be installed and groundwater shall not be used; and

(b) vapor barriers shall be installed and maintained under all buildings.

5. **Notice of Limitations in Future Conveyances**. Each instrument hereafter conveying any interest in the Property shall contain a notice of the activity and use limitations set forth in this Declaration of Environmental Covenants and shall provide the recorded location of this Declaration of Environmental Covenants.

6. **Compliance Reporting**. By the end of every January, Patriarch and each subsequent owner of the Property shall submit to the Department and the Grantee written documentation stating whether or not the activity and use limitations in this Declaration of

Environmental Covenants are being abided by. Patriarch and each subsequent owner of the Property shall submit to the Department and the Grantee written documentation following any transfer of the Property concerning proposed changes in use of the Property, filing of applications for building permits for the Property or proposals for any site work affecting the contamination on the Property subject to this Declaration of Environmental Covenants.

7. **Access by the Department**. In addition to any rights already possessed by the Department, this Environmental Covenants grants to the Department a right of access to the Property in connection with implementation or enforcement of this Declaration of Environmental Covenants.

8. **Recordation & Proof & Notification**. Within 30 days after the date of the Department's approval, Patriarch shall file this Declaration of Environmental Covenants with the Recorder of Deeds for each County in which the Property is located, and send a file-stamped copy of this Declaration of Environmental Covenants to the Department within 60 days of recordation. Within that time period, Patriarch also shall send a file-stamped copy to each of the following: each Municipality and County in which the Property is located; the Grantee; each person holding a recorded interest in the Property; and each person in possession of the Property.

9. **Termination or Modification**. This Declaration of Environmental Covenants may only be terminated or modified in accordance with Section 9 of UECA, 27 Pa. C.S. § 6509.

10. **Department's Address.** Communications with the Department regarding this Declaration of Environmental Covenants shall be sent to:

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Environmental Cleanup Program Manager
2 East Main Street
Norristown, PA 19401

[*The remainder of this page is left intentionally blank*]

PHL:5807868.3/DEW007-210408

ACKNOWLEDGMENTS:

Dated the 27th day of October 2008.

Grantor

PATRIARCH IV LP

By: Patriarch Mgmt LP, its general partner

By: _____
Name: Anthony Imbesi
Title: VP/Sec

COMMONWEALTH OF PENNSYLVANIA)
)
COUNTY OF Montgomery)

On this 27 day of October 2008, before me, the undersigned officer, personally appeared Anthony Imbesi, who acknowledged himself/herself to be the VP/Secretary of Patriarch Mgmt, the general partner of Patriarch IV LP, whose name is subscribed to this Declaration, and acknowledged that s/he executed same for the purposes therein contained by signing the name of the Patriarch Mgmt as general partner of the limited partnership, by himself/herself, as such officer.

In witness whereof, I hereunto set my hand and official seal.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
REBECCA C. HOLLADAY, Notary Public
Upper Gwynedd Twp., Montgomery County
My Commission Expires July 26, 2012

Rebecca C. Holladay
Notary Public

PHL:5807868.3/DEW007-210408

Grantee

PATRIARCH IV LP

By: Patriarch Mgmt LP, its general partner

By: _____
Name: Anthony Imbesi
Title: VP/Sec

COMMONWEALTH OF PENNSYLVANIA)
)
COUNTY OF Montgomery)

On this 27 day of October 2008, before me, the undersigned officer, personally appeared Anthony Imbesi, who acknowledged himself/herself to be the VP/Secretary of Patriarch Mgmt, the general partner of Patriarch IV LP, whose name is subscribed to this Declaration, and acknowledged that s/he executed same for the purposes therein contained by signing the name of the Patriarch Mgmt as general partner of the limited partnership, by himself/herself, as such officer.

In witness whereof, I hereunto set my hand and official seal.

Rebecca C. Holladay
Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
REBECCA C. HOLLADAY, Notary Public
Upper Gwynedd Twp., Montgomery County
My Commission Expires July 26, 2012

PHL:5807868.3/DEW007-210408

Property Owner: Patriarch IV LP
Property Address: 1190 Church Road
Lansdale Borough
Montgomery County

APPROVED, by Commonwealth of Pennsylvania,
Department of Environmental Protection
By: _____ Date: 1/11/10
Name: Stephan Sinding
Title: Environmental Cleanup Program Manager
PADEP - SERO

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF MONTGOMERY

On this 11th day of January, 2010, before me, the undersigned officer, personally appeared Stephan Sinding who acknowledged himself to be the Manager of the Environmental Cleanup Program of the Commonwealth of Pennsylvania, Department of Environmental Protection, Southeast Regional Office, whose name is subscribed to this Environmental Covenant, and acknowledged that he executed same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

_____
Notary Public

COMMONWEALTH OF PENNSYLVANIA
Notarial Seal
Judy Lashley, Notary Public
Norristown Boro, Montgomery County
My Commission Expires July 28, 2012
Member, Pennsylvania Association of Notaries

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

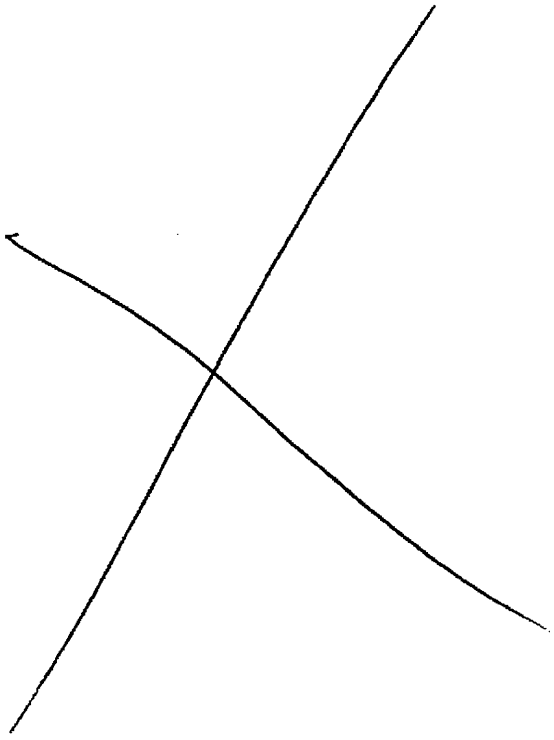
Unit II, Tax Parcel No. 11-00-02048-02-9
Unit III, Tax Parcel No. 11-00-02048-03-8
Unit IV, Tax Parcel No. 11-00-02048-04-7
Unit V, Tax Parcel No. 11-00-02048-05-6

Pursuant to Declaration of Condominium for Station Square Condominium filed in the Montgomery County, Pennsylvania Recorder's Office in Book 5514, Page 618, as it has been amended to date.

PHL:5807868.3/DEW007-210408

EXHIBIT B

MAP OF PROPERTY



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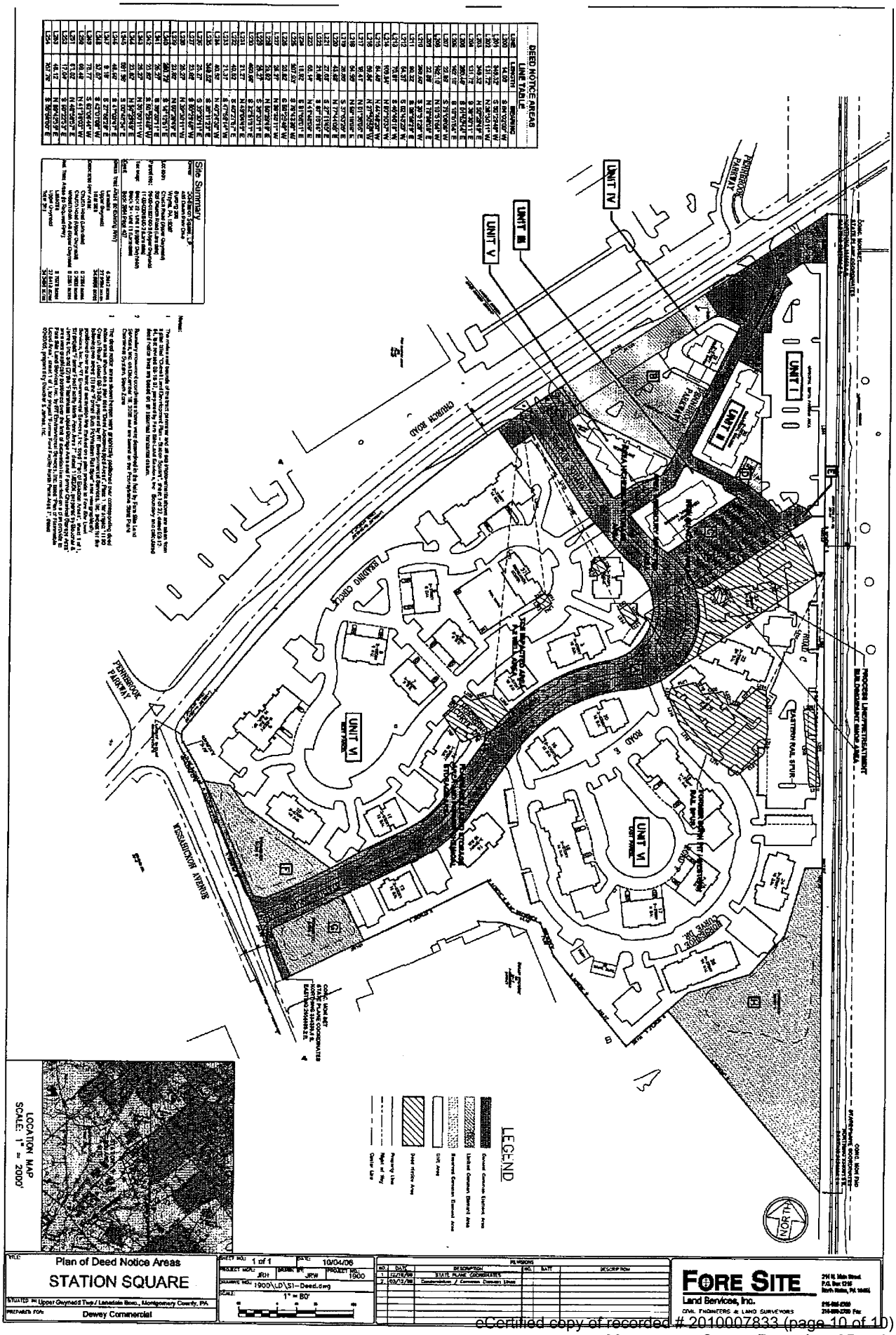

APPENDIX C
COST ESTIMATES FOR REMEDIAL ALTERNATIVES

Alternative 1 - No Action
FS Cost Estimate
NP 7 Superfund Site - 1190 Church Road
Montgomery County, Pennsylvania

Alternative 1 - No Action					
Activity	**Units**	**Unit Costs**		**Quantity**	**Estimated Cost**
Estimated Capital Costs					
1. Access Agreement Negotiation	LS	$	-	0	$ -
2. Surveyeing/Title Work for Deed Restriction	LS	$	-	0	$ -
3. Legal Fees associated with Access and Deed Restrictions	LS	$	-	0	$ -
4. Recording Deed Restrictions with County	LS	$	-	0	$ -
7. Management/Coordination	%	$	-	25%	$ -
TOTAL CAPITAL COST					**0**
Annual Operation & Maintenance (O&M)/Five-Year Reviews					
1. Monitoring/Maintenance (no inspections)	year	$	-	0	$ -
2. Reporting (no reporting)	year	$	-	0	$ -
2. Five-Year Reviews ($10,000 per event; estimed $2,000 per year)	year	$	2,000	1	$ 2,000
TOTAL ANNUAL OMM COST					**$ 2,000**
Years of O&M (30 years)	event	$	-	30	
Discount Rate	%	$	-	7%	
PRESENT WORTH OF OMM COST					**$ 26,555**
TOTAL PRESENT WORTH					**$ 26,555**

Assumptions:

1. No capital costs associated with this alternative.
2. No deed restriction monitoring, maintenance or reporting conducted.
3. Five-year reviews (on average of $2,000/yr or about $10,000 every five-year review).
4. OMM costs assume a duration of 30 years at a discount rate of 7%.

Prepared by: TJG (6/21/2016)
Checked by: JMG (6/23/2017)

Alternative 2 - Existing Engineering and Insititutional Controls				
Activity	**Units**	**Unit Costs**	**Quantity**	**Estimated Cost**
Estimated Capital Costs				
1. Access Agreement Negotiation	LS	$ -	1	$ -
2. Surveyeing/Title Work for Deed Restriction	LS	$ -	1	$ -
3. Legal Fees associated with Access and Deed Restrictions	LS	$ -	1	$ -
4. Recording Deed Restrictions with County	LS	$ -	1	$ -
7. Management/Coordination	%	$ -	25%	$ -
TOTAL CAPITAL COST				**0**
Annual Operation & Maintenance (O&M)/Five-Year Reviews				
1. Monitoring/Maintenance ($2000 per annual inspection/maintenance)	year	$ 2,000	1	$ 2,000
2. Reporting ($1,000 per year)	year	$ 1,000	1	$ 1,000
3. Five-Year Reviews ($10,000 per event; estimed $2,000 per year)	year	$ 2,000	1	$ 2,000
TOTAL ANNUAL OMM COST				**$ 5,000**
Years of O&M (30 years)	event		30	
Discount Rate	%		7%	
PRESENT WORTH OF OMM COST				**$ 66,388**
TOTAL PRESENT WORTH				**$ 66,388**

Assumptions:

1. No capital costs associated with this alternative.
2. Deed restriction monitoring and maintenance ($2000 yr) and reporing at ($1000 yr).
3. Five-year reviews (on average of $2,000 yr or about $10,000 every five-year review).
4. OMM costs assume a duration of 30 years at a discount rate of 7%.

Prepared by: TJG (6/21/2016)
Checked by: JMG (6/23/2017)

Alternative 3 - Property-Wide Engineering and Insititutional Controls				
Activity	**Units**	**Unit Costs**	**Quantity**	**Estimated Cost**
Estimated Capital Costs				
1. Access Agreement/Deed Restriction Negotiation	LS	$ 3,000	1	$ 3,000
2. Surveyeing/Title Work for Deed Restriction	LS	$ 4,000	1	$ 4,000
3. Legal Fees associated with Access and Deed Restrictions	LS	$ 6,000	1	$ 6,000
4. Recording Deed Restrictions with County	LS	$ 2,000	1	$ 2,000
7. Management/Coordination	%	$ 3,750	25%	$ 3,750
TOTAL CAPITAL COST				**18,750**
Annual Operation & Maintenance (O&M) / Five-Year Reviews				
1. Monitoring/Maintenance ($500 annually)	year	$ 1,000	1	$ 1,000
2. Reporting ($500 per year)	year	$ 500	1	$ 500
3. Five-Year Reviews ($10,000 per event; estimed $2,000 per year)	year	$ 2,000	1	$ 2,000
TOTAL ANNUAL O&M COST				**$ 3,500**
Years of O&M (30 years)	event		30	
Discount Rate	%		7%	
PRESENT WORTH OF O&M COST				**$ 46,472**
TOTAL PRESENT WORTH				**$ 65,222**

Assumptions:

1. Capital costs associated with professional services related to expanded deed restrictions.
2. Project management costs set to 25% of capital costs.
3. Deed restriction monnitoring and maintenance ($1000 yr) and reporting at ($500 yr).
4. Five-year reviews (on average of $2,000 or about $10,000 every five-year review).
5. OMM costs assume a duration of 30 years at a discount rate of 7%.

Prepared by: TJG (6/21/2016)
Checked by: JMG (6/23/2017)

APPENDIX D
COPY OF USEPA'S JUNE 22, 2017 APPROVAL LETTER

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

June 22, 2017

Tom Glancey
Golder Associates Inc.
200 Century Parkway, Suite C
Mt. Laurel, NJ 08054

RE: North Penn Area 7 OU1 (Soils)
Review Comments on Golder Associates Inc. Responses to Comments on the Focused Feasibility Study Report for OU-1 Soil at North Penn Area 7 Superfund Site, North Wales, PA

Dear Mr. Glancey:

The United States Environmental Protection Agency (EPA) has completed its review of the May 3, 2017 document: Golder Associates Inc.'s (Golder) Responses to Comments on the Focused Feasibility Study Report for OU-1 Soil at North Penn Area 7 Superfund Site, North Wales, PA. Minor comments (Enclosure) in regard to the responses were generated in EPA review process. These comments may be addressed in the remedial design RD phase, or at this time in a separate letter.

In accordance with the Administrative Order on Consent for Remedial Investigation / Feasibility Study, Docket No III-2000-0018-DC, IX.A (1), EPA approves the submission. Please incorporate the responses contained in Golder's, May 3, 2017 correspondence in a Final FFS report and submit the Final FFS, in hardcopy and electronic format to EPA.

Thank you for your assistance and cooperation. If you have questions or would like to discuss this matter, please call me at (215) 814-3216 or contact me via email at turner.david@epa.gov.

Sincerely

David Turner (3HS22)
Remedial Project
Manager

Enclosure

1. General Comment No. 2: Figure 3 – The proposed areas of revised deed restriction area are shown as rectangular shapes with soil boring location and labels. Provide discussion and how the limits of the areas were determined.

Golder Response: The proposed rectangular shapes were developed by interpolating between points that contained at least one constituent at a concentration exceeding Preliminary Remediation Goal (PRG) and proximal sampling points that did not. For example, the rectangular area surrounding soil boring AB-80 (which contained constituents above PRGs) is defined by soil borings AB-79, AB-81, AB-82 and AB-83 (which did not contain any constituents above PRGs). In general, the extents of the rectangular shapes are conservative; rectangular shapes will simplify the planned metes-and-bounds survey descriptions and help in the identification of the deed restriction areas in the field (compared to irregularly-shaped areas).

Follow-up Comment: Reviewing the proposed deed restrictions shown on Figure 3 and the sample locations provided on Figure 2 of Golder's March 2008, Remedial Investigation Report, the deed restriction area surrounding soil boring AB-80, cited in Golder's response to this comment, does not have a proximal sampling point within a 170-degree arc northwest of AB-80, between soil boring AB-79 and AB-83. It would be beneficial in finalizing the limits of each deed notice by including the appropriate proximal soil samples used for this interpolation on this Figure. Was this interpolation based upon linear assessment and can concentrations of Site-related metals be interpolated between sample locations?

2. General Comment No. 3: Figure 3 – The limits of these areas do not align with any site features as shown on Figure 3. Please explain how the owner's maintenance staff will locate these small, randomly oriented areas of restriction without surveyed locations.
Golder Response: Once the FFS Report is approved, the deed restrictions will be finalized, including unique identifiers and metes-and-bounds descriptions for each of the proposed deed restriction areas. In concert with finalized AutoCAD maps, the metes-and-bounds surveys can be used by property owner staff to readily identify each proposed deed restriction area in the field for monitoring and maintenance. Constructing monuments at the corners of the areas is not practical (as several corners are within the footprints of buildings or paved driving areas) and is not consistent with the use of the property as a residential apartment complex.

Follow-up Comment: It is still unclear how the property owner's staff are going to locate the boundary of the deed restricted areas with AutoCAD maps and metes-and-bounds information without survey equipment and reference monuments to provide location and bearing angle.

Monuments can be placed at the position that any boundary of a deed restricted area intersects the exterior of any structure, either with a concrete monument or a brass marker placed on the foundation wall. In addition:

-Please explain why the use of monuments would not be consistent with the use of the property as a residential apartment complex.

-Is this inconsistent referring to any possible interfering with the use of the property as a residential apartment complex, or aesthesis?

- Explain how the existing property boundary monuments are consistent with the property use.

Figure 3 and deed notices should include a table of reference coordinates of each turning point or building intersecting location, in state plain coordinates or similar.

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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